DIGITAL BANKS AND THE POWER OF THE CLOUD TRACKER®

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ACKNOWLEDGMENT

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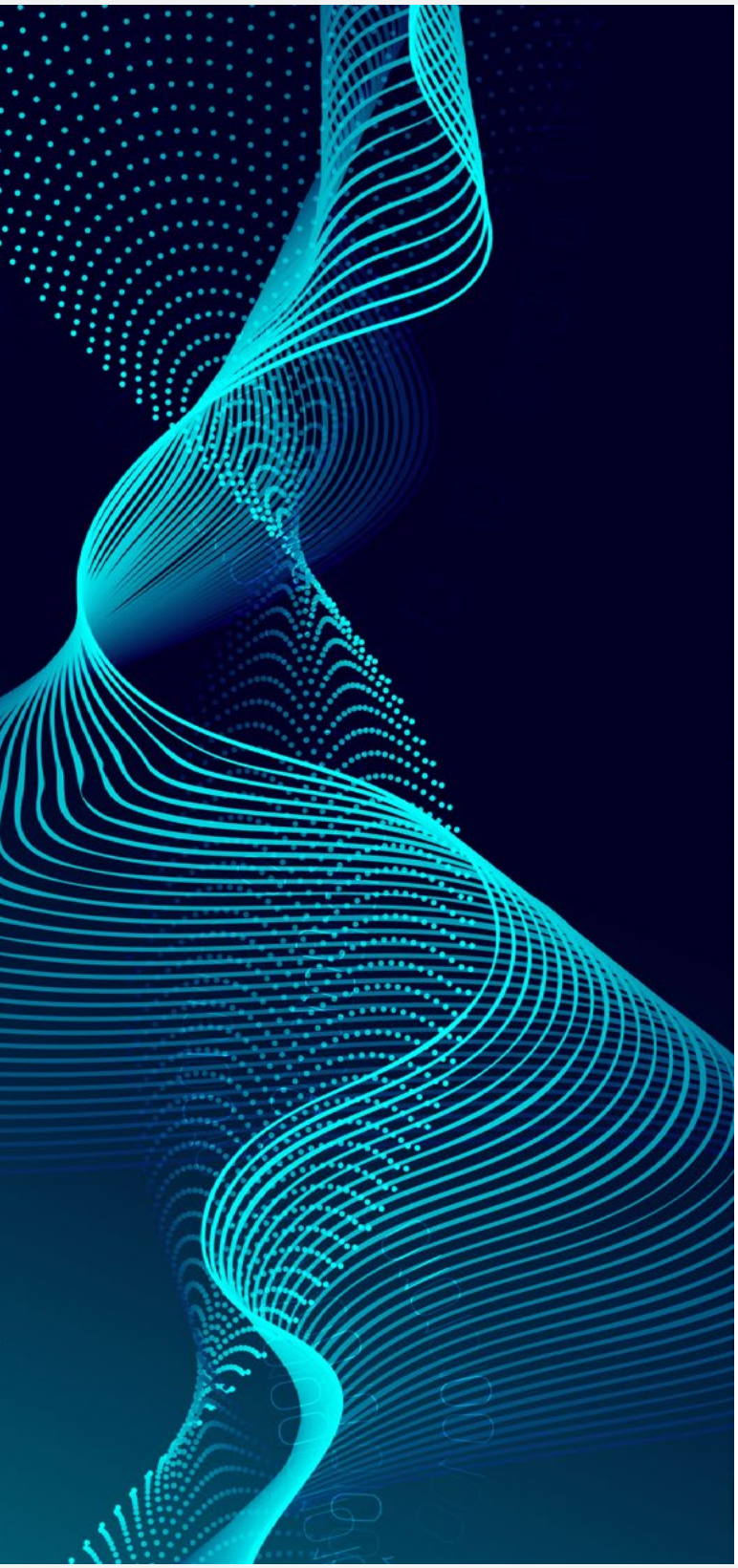
WHAT'S INSIDE

Financial institutions (FIs) can no longer afford to think of digital transformation as a far-off prospect. Today's banking customers want digital and often mobile-first services, and they expect their banks to offer faster and far more personalized services than ever. Consumers' desires for digital innovation are pushing FIs of all stripes to overhaul their digital infrastructures and enable access to fast, seamless, interactive and engaging banking experiences.

These efforts are not without their challenges, however, especially as most FIs still rely on legacy infrastructures geared toward offering and supporting services at physical branches. FIs have looked to upgrade their core banking infrastructures to accommodate their customers' needs, but they often run into roadblocks. These complex and inflexible infrastructures often cause them to struggle with scaling and deploying services that meet customers' expectations, and the expenses involved in maintaining legacy banking architecture only make matters worse.

Staying competitive and delivering relevant and satisfying digital banking experiences requires FIs to embrace cloud-native architectures to overhaul their existing ones. Many have taken measured approaches by shifting to hybrid cloud models, wherein they rely on a combination of privately held and public cloud services that allow them to reap benefits while mitigating risks. These efforts seem to be paying off, with 87 percent of FIs that utilize hybrid architectures reporting that they outperform their competitors.

Cloud-based infrastructure's digital banking benefits are clear, but FIs seemingly face a long road to adoption, with 80 percent of them still utilizing proprietary architectures to varying extents. Enter the Digital Banks And The Power Of The Cloud Tracker®, a collaboration between PYMNTS and NuoDB. This monthly report will chart the digital banking world's latest developments and how cloud computing is helping FIs make their capabilities scalable, efficient and accessible. The series will examine how digital banking platforms can establish trust and safety, which are crucial to encouraging customers' adoption of



these technologies. The Tracker will also explore how FIs can overcome the obstacles that come with implementing these technologies as well as feature insights from industry players on how their firms turned their ambitions into realities.

AROUND THE CLOUD BANKING WORLD

Cloud banking is becoming more attractive to banks worldwide as part of their digital transformation strategies, especially in markets like the European Union and United Kingdom, where real-time payments' growth is progressing quickly. One such development comes from technology providers Temenos and ClearBank, who have partnered to bring cloud-based tools to U.K. financial entities. The solution is tailored to faster or real-time payments and will rely on ClearBank's APIs to allow FIs to connect to several real-time networks within the U.K., including its Faster Payments Service. Transactions will be handled and supported using Temenos' technology.

U.K. FI Lloyds Bank is meanwhile embracing cloud-native architecture, working with technology providers Google and Microsoft to use their cloud computing tools as part of its dedicated digital transformation

plan. The bank has earmarked approximately $3.7 billion in funds for the effort, which began in 2018 and will help Lloyds' payment processes and digital customer service experiences better compete with those of the region's challenger banks. The cloud platforms will help the bank better develop these digital features.

Cloud technologies' ability to enhance real-time payments is also appealing for FIs in the United States, including Colorado-based FI FirstBank. The bank is working with technology provider Finxact to develop real-time payments support for customers. The move will bring these payments onto the cloud and follows the bank's joining of The Clearing House's (TCH's) real-time payment network in 2019. The bank plans to use the cloud banking platform to enable access to innovative products and services.

For more on these stories and other cloud banking headlines, check out the Tracker's News and Trends section (p. 13).

FINTECHS CURVE, NEAT ON WHY INFRASTRUCTURE IS KEY TO DIGITAL TRANSFORMATIONS

Digital transformation is not about which bank has the newest or flashiest online platform, but about which can offer digital

EXECUTIVE INSIGHT

What are some of the factors preventing banks from pursuing digital transformations, and how can they address those challenges?

"For decades, banks were the technical pioneers, leading the rest of the world by adopting and building cutting-edge technology to serve their customers. Unfortunately, with the advancement of cloud technology, those same systems have become legacy and are now [banks'] greatest weaknesses. For banks to compete and thrive in a cloud-based world, they must enter and successfully complete digital transformations that completely rearchitect how they conduct business. It is easier said than done, however.

Before banks embark on digital transformations, they must overcome some significant hurdles. First, they need to reengineer their cultures and make the willingness to adopt new technologies, the confidence to run in the cloud and the desire to move fast with a DevOps mindset part of their ethos. Next, [they must] gain confidence by developing and deploying a few small new applications or services in the cloud. With this experience, they then need to invest in extreme diligence at all layers of the technology stack, from infrastructure to app, to identify how the legacy systems can be upgraded, decoupled and moved into the cloud incrementally. It is not easy, but if successful, it is what will keep those same banks leading the industry for years to come."

ARIFF KASSAM,
Chief Technology Officer at **NuoDB**

tools that most closely match customers' preferences. FIs must also ensure these features are supported effectively — and this is where tools such as cloud-based applications come into play. In this month's Feature Story (p. 8), Nathalie Oestmann, chief operating officer at aggregated payment card provider Curve, and Iris ten Teije, general manager for Europe at FinTech Neat, discuss how their companies are using automation, cloud technology and new features to distinguish themselves from other platforms.

DEEP DIVE: **BANKS NEED TO CRAFT DEDICATED SOLUTIONS FOR DIGITAL TRANSFORMATIONS**

Approximately 3.6 billion consumers will access digital banking services by 2024, up from 2.4 billion in 2020. This means FIs that have fallen behind on the digital curve must work toward offering innovative banking experiences that are relevant and meaningful, and revitalizing their digital infrastructures is key to ensuring they can fluidly respond to online customers' shifting needs. This month's Deep Dive (p. 19) explores why banks that have not yet developed holistic digital transformation strategies must do so, and how cloud banking solutions can benefit them by promoting flexible digital platforms to satisfy their customers.

FIVE FAST FACTS

58%

Share of banking transactions that must be completed **in person or offline**

87%

Portion of banks outperforming their peers that are using **hybrid cloud models**

50%

Approximate amount banks could save by **moving operations to the cloud**

3.6B

Projected number of **digital banking users** around the world by 2024

33%

Predicted CAGR of **the global cloud security market** from 2020 to 2025

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HOW CURVE, NEAT ARE
KEEPING UP WITH CUSTOMERS'

DIGITAL BANKING NEEDS

DIGITAL TRANSFORMATION IS ESSENTIAL FOR FIs' SUCCESS,

but what such transformation entails has shifted in recent years. Consumers and small to mid-sized businesses (SMBs) are not just searching for financial partners with online platforms and mobile apps, but rather those offering such tools with greater degrees of efficiency, personalization and support for their specific needs.

Ensuring that customers can access fast and secure services is critical and one of the many reasons legacy and challenger banks alike are shifting how they view many processes. Building features out onto the cloud, for example, can create more flexibility to support a range of personalized financial features, according to Nathalie Oestmann, chief operating officer at aggregated payment card provider Curve. The cloud can also help financial players more readily collect and utilize customer data, allowing for even greater personalization.

"We are completely cloud-based, and as a result, everything that we do is with cloud-based applications," Oestmann said. "We think it is very important to have one view of the customer that includes marketing cloud and service cloud, which means ... we want to be able to know everything that customer is doing with us and every question that they have had, so we have [a comprehensive] experience with them."

Curve, which recently passed the 1 million sign-up mark, allows customers to consolidate many of their plastic payment cards

> "It is very important to have one view of the customer that includes **marketing cloud and service cloud.**"

— credit and debit — into a single, company-issued physical card. Customers load their original payment cards' details onto Curve's mobile app and can select which to use when making physical or digital transactions.

PYMNTS spoke with Oestmann and Iris ten Teije, general manager for Europe at entrepreneur-focused FinTech Neat, to discuss how both companies innovated their platforms with such flexibility in mind. Each has added new technologies or solutions to its services lineup over the past several years.

DIGITAL TRANSFORMATIONS IN A DIGITAL AGE

Digital transformations must be undertaken with specific purposes in mind. Developing core banking infrastructures that can properly support a range of financial services is all the more critical in Europe, where a variety of enterprising FinTechs and challenger banks are addressing consumer demand for online banking, contactless payments and advanced financial analytics. Neat is one such FinTech. It operates in London as well as Hong Kong and Shenzhen, China, providing digital-only bank accounts to SMBs looking for greater convenience and consistency during business transactions.

Ten Teije said Neat differentiates itself by enabling multicurrency transactions for business owners, and it currently supports payments in Hong Kong and U.S. dollars, British pounds and the euro. Neat's services were originally consumer-facing, but

it geared its digital transformation toward supporting businesses that needed critical services.

“Neat [is] a relatively young company compared to some of the banks around, so … we have always been digital-first,” ten Teije said. “Obviously, we have never had any branches, so the application was always online [and] we have not necessarily been through a [digital] transition. However, we did … have a bit of a pivot internally, because when we started four years ago, we were originally building a consumer product. So, when Neat Business came along [two years ago], we had to change our processes.”

Both Curve and Neat use third-party cloud providers to support their customers with cutting-edge tools. Curve, for example, rolled out a numberless card in April, which was released to its crowdfunding investors. The physical card comes equipped with a chip and the name of its owner, but all other details are stored in Curve’s mobile app. Its release is considered a trial run for a broader rollout, Oestmann said.

“This also gives us a chance to test out this technology and see if this might be something we might want to roll out to the rest of our customers, and whether we see that as something that will be mainstream,” Oestmann said of the card. “Apple has done that in the U.S. as one of their differentiators for their product. We are going to test that out here [in Europe].”

Neat is also examining how it may add more support for those using its entrepreneurial accounts, many of whom are traders who also need to navigate the challenges of international shipping and payments and customs documents, ten Teije said.

"[These traders] can be trading in both goods or services," she explained. "Services is quite digitalized, but when it comes to goods there, is still a lot of paper when it comes to shipping, customs, declarations and documents, [and] these processes are still quite painful for our customers. So, we are also looking at ways that we can ... work together [with other companies] to build these frictionless experiences for our customers, beyond just payments."

NEW FEATURES AND TECHNOLOGIES

Curve and Neat plan to closely monitor future financial and payment trends, especially as events such as the spread of COVID-19 may affect consumers' long-term banking preferences. Curve will be adding new features to help consumers who are shifting their budgets or spending patterns due to the virus, for example, by launching a credit product later in 2020, Oestmann said.

"One of the products that we are also launching is a credit feature," she said. "We will be able to see [what] users' spend patterns are, so we believe we will be able to make on-the-spot decisions about extending credit to customers. I think, as we are moving forward into an imminent recession where people need to be more thoughtful about how they access funds, we have an opportunity there with our credit product."

Neat already leverages artificial intelligence (AI) for its FaceMatch identification tool, which uses facial biometrics to authenticate users' identities, but it will be examining broader uses of the technology in the next year, according to ten Teije. The FinTech does not intend to fully rely on AI until it can tackle tasks with the same flexibility as human employees, however.

"In our customer support department at the moment, for example, we are not using any sort of automation and we are not planning to do that unless it can be equally as good as human support," she said. "So far, we have tested a couple of different tools, but it has not really matched the human quality yet."

The introduction of innovative infrastructures and features will keep entities competitive as digital banking becomes broader and more complex. Digital transformation is a more methodical process than it once was, however, and the financial firms that strategically and carefully approach online and mobile features will be a step ahead.

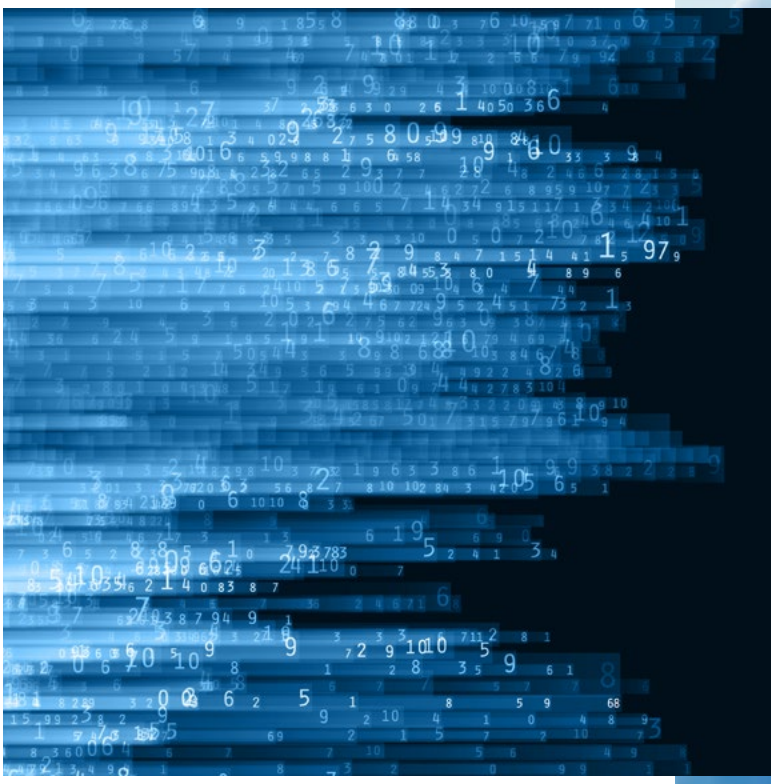
NEWS& TRENDS

TRANSITIONS TO THE CLOUD

LLOYDS BANK PARTNERS WITH GOOGLE, MICROSOFT ON CLOUD-POWERED TRANSFORMATION

British FI Lloyds Banking Group is moving forward with its digital transformation plans by teaming with major technology companies Google and Microsoft to integrate their cloud-computing services. The partnerships are part of Lloyds' transformation program, which it initiated in 2018 to keep pace with U.K.-based challenger banks like Monzo and Sterling. It has earmarked £3 billion ($3.8 billion USD) for the program.

Migrating to the cloud can help banks reduce costs and innovate their platforms, with one report noting such moves could cut their expenses by up to 50 percent. Lloyds signed a five-year agreement with Google Cloud to use the latter's financial cloud solutions for open banking and for developing its mobile apps. The FI will meanwhile leverage its partnership with Microsoft to use the latter's Managed Desktop product and Microsoft Azure cloud platform. This follows an agreement the two announced in January 2020, when Lloyds revealed it would use Microsoft's services to boost its technology overhaul.



STANDARD BANK ADOPTS MICROSOFT CLOUD OFFERINGS

Microsoft's Azure platform and cloud capabilities are also being leveraged by South Africa-based Standard Bank, which is moving its SAP operational banking systems onto the Azure cloud. SAP is an SAP Banking Services online banking solution that provides core banking capabilities to clients. According to Sabelo Nkwanyana, Standard's chief information officer for personal and business banking in South Africa, the move will help the FI enhance its services and more quickly bring new products to market.

The partnership comes one year after Microsoft launched its first two Azure data centers in South Africa, and eCommerce behemoth Amazon is slated to open a data center in Cape Town later this year. Standard has an existing cloud partnership with Amazon Web Services (AWS), which the FI says it will maintain in addition to the Microsoft partnership.

SBERBANK TEAMS WITH HUAWEI ON CLOUD SERVICE DEVELOPMENT

Russia's largest FI is also looking to the cloud to support its online and mobile products. Sberbank will collaborate with Chinese electronics provider Huawei to create cloud banking services within Russia, the two companies announced. The former will leverage the latter's 5G networking technology capabilities to build a cloud computing service called SberCloud. Advanced. The service will provide SMBs and startups with 37 cloud-based servers for easier data collections and transactions, allowing them to more holistically manage their data in one place. Sberbank said the solution would not be used to provide direct-to-consumer products.

PAYMENTS AND THE CLOUD

FIRSTBANK LOOKS TO MOVE CORE SYSTEM TO FINXACT CLOUD

Cloud technology is becoming more affordable, making it more appealing to smaller, regional banks that lack the financial resources of larger competitors. One such FI is Colorado-based, privately held FirstBank, which recently announced a partnership with core-as-a-service (CaaS) banking provider Finxact. The former plans to move its 35-year-old core system to the latter's cloud-based system as well as develop next-generation financial products for its digital customers.

FIs have good reason seek innovative core solutions, as one study predicts that there will be 3.6 billion digital banking users by 2024. These users will anticipate quick access to their chosen financial services, and banks worldwide are increasingly turning to cloud-based offerings to aid their digital transformations.

MONEYGRAM TURNS TO CLOUD PARTNERSHIPS FOR PERSONALIZED CUSTOMER EXPERIENCES

Cloud technologies are finding favor with various financial entities, including those such as cross-border and peer-to-peer (P2P) payments provider MoneyGram. The company is teaming with both AWS and Google Cloud services, relying on the former to help it process transactions while using the latter's capabilities for data insights and internal analytics to learn more about customer behaviors. Leveraging the cloud will allow MoneyGram to analyze data in real time and provide more personalized services to customers.

WESTERN UNION CONNECTS INTEGRAL BANKFX TO THE CLOUD

Cross-border payments provider Western Union is also looking to more thoroughly integrate cloud services into its platform. The company partnered with software firm Integral to develop its new risk management program, Integral BankFX, which will be connected to the cloud. This will allow Western Union to more easily automate and connect across the 200 countries and 130 currencies it currently supports, according to Scott Johnson, the company's head of product.

The risk management program is designed to bring more automation to the company's risk assessment system, enabling it to more easily and quickly isolate potentially high-risk or fraudulent transactions. Connecting to the cloud offers increased security while allowing Western Union to easily access all data.

INDUSTRY TRENDS

TEMENOS, CLEARBANK WORK TO SUPPORT UK BANKS

Real-time payments are still picking up steam in the U.S., but their adoption has advanced further in the U.K., with the latter's Faster Payments Service prompting development among FIs. Cloud technology providers Temenos and ClearBank have partnered to create a platform that offers the nation's banks cloud-based real-time payments support. The two companies will utilize the Temenos Payments platform to process the transactions, while leveraging ClearBank's connection to U.K. payment networks to enable easier access for banks. ClearBank's API-based services will also give U.K. FIs full access to data and to partner services to enable seamless payments, as banks can access real-time payment networks such as Bacs Payment Schemes Ltd. and Faster Payments through these APIs.

IBM AIMS FOR A TOP SPOT IN THE CLOUD UNIVERSE

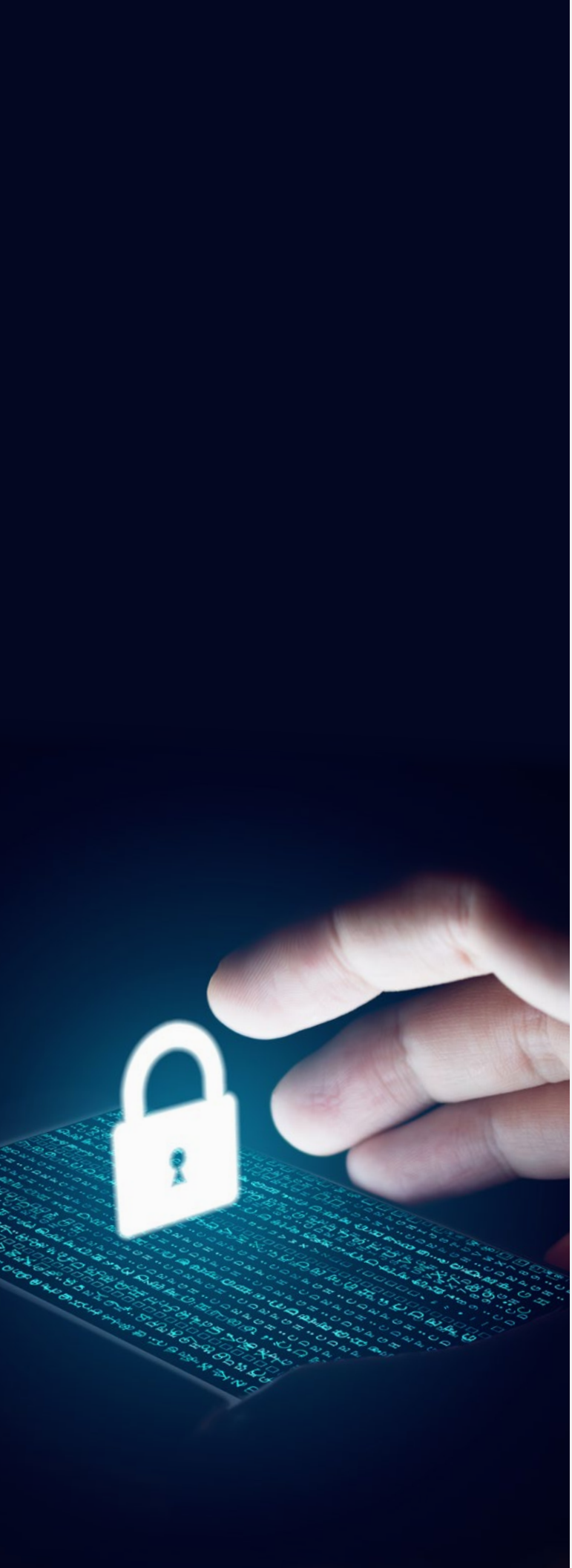
Cloud banking is expanding as providers are bringing the technology to banks across the globe. Technology and software provider IBM is aiming to play a major role in this expansion, and it will be relying on software firm Red Hat as the latter assumes a role as the former's future hybrid cloud products unit, according to a joint announcement.

IBM finalized its acquisition of Red Hat for $34 billion in July 2019. The move was intended to help the company compete in the space against several other heavy-hitting technology firms, including AWS, Google and Microsoft.

CLOUD PROVIDERS URGED TO DEFER PAYMENTS DURING COVID-19

The cloud banking space has been feeling the COVID-19 outbreak's effects as SMBs struggle to stay afloat during the pandemic. Cloud services providers including AWS, Google and Microsoft are being asked to defer payments for their services to these small businesses during the crisis, according to recent reports.

Purchasing and supporting cloud infrastructures are often top expenses for SMBs, which means allowing them to defer these payments could ease many of their financial strains. These firms and their banking partners often rely on cloud solutions to swiftly send money online, which is especially crucial as many physical branches and businesses are closed in the wake of the pandemic.



FRAUD AND SECURITY

RUSSIA'S CENTRAL BANK RUMINATES ON CLOUD SECURITY

Digital banking innovation has proceeded at a rapid pace in Russia since a 2014 government announcement directed its banks to build out a national payments system, and the Central Bank of the Russia Federation (CBR) is considering using cloud technologies to achieve its goals. The technologies' security and data protection weak points are still concerns, however, and could prevent more robust adoption, Olga Skorobogatova, deputy governor of CBR, said during a recent interview regarding innovation. CBR is like many banks in that it uses the cloud to run internal programs, but it has yet to utilize such technologies for more consumer-facing applications.

The bank is most concerned about data protection, according to Skorobogatova, who added that it is difficult to ensure that data is fully secured on cloud systems due to countries' varying regulatory requirements. She stated that regulators must implement data standards before the cloud can be fully implemented at scale. The global banking ecosystem is beginning to leverage cloud solutions to bolster security, however, with one report predicting the global cloud security market will see a compound annual growth rate (CAGR) of 33 percent through 2025.

HYBRID SOLUTIONS COULD EASE CLOUD SECURITY CONCERNS

Russian banks are not the only FIs expressing security concerns regarding cloud technology. One recent survey found that 34 percent of banks are still operating within a "risk-averse" culture, where movements to cloud infrastructure must be handled carefully. Forty-six percent of surveyed bankers consider the persistence of legacy banking infrastructure — not security — to be their greatest barrier to adopting cloud-based technologies.

Banks are thus migrating to the cloud in stages, both to minimize any potential software security weaknesses and to wean themselves off their legacy systems. Relying on a combination of established processes and cloud solutions could increase efficiency, too, as another study found that 87 percent of FIs that are outperforming their peers are using such hybrid solutions.

CLOUD SECURITY ALLIANCE FOCUSES ON NATIONAL SECURITY

Banks are keeping cybersecurity top-of-mind amid the COVID-19 pandemic as they work to safeguard sensitive payment and personal information on their servers. The U.S. Cloud Security Alliance (CSA), a group focused on the development of cloud technology use standards and best practices, has set this topic as the top priority for its annual summit, currently slated for June 25.

The summit will focus on cloud security's potential impacts on national security, as many of the details FIs store on cloud services could be used for large-scale identity thefts or fraud if stolen. It is critical to discuss the cloud's remaining security weaknesses to ensure such information is protected, particularly during the COVID-19 pandemic, when banks and government entities have finite resources available to weather the crisis.

DEEP
DIVE

STRATEGIZING TRANSPARENT, HOLISTIC DIGITAL BANKING TRANSFORMATIONS

FIs' consumers and business clients expect instant access to needed financial services regardless of which devices they use, but reality can fall short of their expectations. Banks do not always have the budgets or resources to craft cutting-edge online and mobile experiences, though they can no longer afford to put off digital transformations.

The number of online banking customers is growing worldwide, and FIs' consumers are coming to expect seamless digital experiences as a result. One study recently determined that the number of digital banking users is expected to exceed 3.6 billion by 2024, and a separate study suggested that many customers were willing to use FinTechs as well as their primary banks to receive the level of technological support they desired. It found that 64 percent of consumers across 27 surveyed markets noted that they were using FinTech services.

Larger FIs often partner with FinTechs and provide more advanced digital offerings, and other FIs know they need to upgrade their services to compete. Doing so will take more than simply revamping their mobile apps or adding a couple of digital solutions, however. These FIs must implement digital

transformation strategies starting from the ground up, focusing first on ensuring they have the necessary infrastructure to support customer-facing tools before integrating them. Holistic approaches to transformation will allow these banks to create more robust online services that can handle customers' preferred digital tools.

STARTING AT THE CORE

Most FIs moved their data from paper-based systems to online servers decades ago, using core banking solutions to send and receive cross-border payments as well as to process less sensitive daily transactions. Some banks have not upgraded their core banking infrastructures since their first digital shifts, however. Forty-three percent of U.S. banks still rely on COBOL IT systems — which are based on the COBOL programming language that originated in 1959 — for their core banking needs. This shows that banks' success hinges upon beginning their digital transformations by reevaluating core infrastructures.

This type of strategy also allows FIs to implement digital technologies at more measured paces. Employing professionals to build out AI solutions, integrate automation into customer flows and develop blockchain-based offerings is costly, and banks that lean on these tools to attract customers without implementing the appropriate security protocols could find themselves plagued by fraud or faced with compliance challenges.

FIs have several options when upgrading their core banking infrastructures, but transitioning to the cloud has proven to be one of the most advantageous. Cloud environments have seen increased development and usage in recent years as data can be kept secure off-site, which protects it from fraudsters while allowing easier access.

THE CLOUD AND ITS ROLE IN BANKING TRANSFORMATIONS

Global banking revenues are expected to reach approximately $5.4 trillion by 2022, and banks that have not upgraded their core banking infrastructures will miss lucrative opportunities. Sixty percent of

DATA DOES NOT HAVE TO BE ROUTED THROUGH MULTIPLE SECURITY MEASURES TO BE SHARED WITH THESE THIRD PARTIES, **AS THEY CAN INSTEAD SIMPLY JOIN PRIVATE CLOUD NETWORKS TO ACCESS THE INFORMATION.**

FIs in one 2019 survey reported that they were already running at least some of their financial applications on private or public cloud environments, and an additional 18 percent planned to migrate their operations to the cloud within the next two years. Cloud services can also enable FIs to more easily integrate with potential partners like FinTechs, which offer solutions such as mobile banking, digital wallets or online investing tools. Data does not have to be routed through multiple security measures to be shared with these third parties, as they can instead simply join private cloud networks to access the information.

The cloud can also help FIs more clearly identify patterns leading to deeper customer behavior insights, which are critical to developing online tools to satisfy users. Cloud environments also make it easier to bring alternative sources of information into customer behavioral analytics. Time series data — a collection of information that showcases changes in behavior over time — is more easily quantified when social media sources, FinTech details and payment information from third-party mobile wallets can be integrated into this pattern.

Transitioning to a cloud environment is only one step in a long-term digital transformation strategy. Banks will need to play the long game to ensure they can fully anticipate and develop the digital experiences consumers truly want, thus establishing their places in the future of digital banking.

ABOUT

PYMNTS.com

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