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# Set Money in Motion with payments modernization.

Learn how FIS and AWS built the FIS Money Movement Hub for the future of banking

The Register®

## Executive Summary

The payments industry in North America faces a perfect storm. Consumers are demanding faster, more seamless payment options, with businesses increasingly expecting the same.

Meanwhile, the payments landscape is fragmented and in flux. There are more options than ever, but they are not always easily integrated. Financial institutions must navigate increasingly complex compliance regimes.

This has left financial institutions, particularly those outside the top tier, and processors racing to keep up with technological change. Security and resilience are paramount, but the hardwired bespoke systems of the past cannot meet the always-on, always-available requirements of today, never mind the future.

This paper outlines the evolution of today's industry, and the challenges that institutions of all sizes face as they prepare for the future.

It explains how FIS has partnered with Amazon Web Services (AWS) to develop the FIS Money Movement Hub, a platform that rises to these challenges, allowing institutions, particularly smaller organizations and fintechs, to plan for and succeed in the payments landscape of the future.

## Introduction to Payment Modernization

Cash may be king figuratively. But in North America, day-to-day payments are overwhelmingly made electronically, with cash accounting for just 16 percent of transactions in 2023 according to research by Federal Reserve Financial Services.

This is a result of accelerating evolution, from the cash, check and wire-based 1960s, through the explosion of plastic card transactions in the 1980s, to the development of direct account-to-account payments in the first decades of this century.

Technology has powered each step of this evolution. Paper and telegram services were the foundation of banking services until the 1980s, when ATMs and automated clearing houses enabled the widespread adoption of payment cards. But these relied on heavyweight, largely bespoke systems, with mainframes at their heart.

The explosion of options customers enjoyed in the 2000s stemmed from advances in mobile networks, rapid application development, and real time, instant payment technologies.

The current decade has seen systems become increasingly decentralized, with customers, financial institutions and payment providers taking advantage of cloud-based platforms.

These developments have been accompanied by rapid advances in machine learning and artificial intelligence (AI), which has meant that systems have become increasingly secure and resilient, while fraud prevention systems have become more reliable and granular.

### *A Time of Transition*

The most recent figures from the Federal Reserve show that in 2021 the total number of ACH transfers reached 34.2 billion, with a total estimated value of $86.59 trillion, a rise of 12.6 percent per year from 2018 to 2021. Commercial wire transfers grew by double digits each year between 2018 and 2021, accounting for 387.7 million transactions and $1,441 trillion.

Meanwhile, alternative payments, via institutions' websites or apps, amounted to two billion transfers in 2021, accounting for $0.45 trillion. But this sector is growing rapidly, up 51 percent by volume and 43 percent by value each year between 2018 and 2021. Just under 11 percent of these were consumer wire transfers.

And while same-day transfers accounted for a fraction of ACH payments, almost three quarters of P2P payments resulted in funds being available in 30 minutes or less.

These are generational changes. Fed research shows that younger consumers are less likely to use cash, while half of consumers use mobile apps for person-to-person payments, representing what the institution calls a "slow consumer transition away from paper-based payments."

It's clear that consumers and businesses are voting with their wallets. So how do financial institutions keep up with this fast-moving, ever more diverse market?

## Challenges Faced by Financial Institutions

Financial institutions are struggling to keep up with rising customer expectations when it comes to payment services.

Seamless, speedy services are non-negotiable. Research by the Federal Reserve shows that 86 percent of businesses and three quarters of consumers used "faster or instant payments" in 2023, with the vast majority relying on their financial institution to provide these services.

This is about more than convenience. Businesses in particular look to such services to help them reduce costs and ease cash flow.

But that simplicity at the customer level hides complexity for financial institutions and the payment providers they rely on.

### Legacy Technology Issues

While technology has enabled and accelerated each evolution in payments, that doesn't mean that legacy hardware and software have disappeared from banks. These have historically been bespoke systems, hardwired into individual institutions.

Legacy systems may be hard to scale, and might not be appropriate for 24x7 operation, for instance if they rely on batch processing.

Updating existing services and offerings or simply keeping up to date with compliance and regulatory changes is complicated at best. The same is true when introducing new payment schemes, products, or services.

And aging systems often require specialized personnel, diverting expertise and resources that could be focused on newer technologies and services that could generate more value.

### Compliance

Payments, like other core financial systems, are highly regulated. In North America this includes federal obligations, for example under EFTA, Dodd-Frank, and the Patriot Act, as well as Canadian laws, such as the Canadian Payments Act. Operators must also adhere to industry standards such as PCI DSS and those set by the Federal Reserve and FedNow®. Aging and disconnected systems make compliance far harder to achieve and manage.

### Cybersecurity

The financial sector is naturally a target for cyberattacks. Criminals and state sponsored actors might target individual institutions or entire platforms, whether to redirect payments, steal data, extract ransoms, or in the case of hostile states simply cause disruption and undermine confidence.

And payments systems are both a target and a tool for more traditional fraudsters. The ease of use and speed of modern payments systems can be a boon to fraudsters to extract money from their targets quickly and efficiently. Or they can hijack credentials to take over accounts or create fake identities to set up seemingly legitimate accounts.

Older systems – usually slower and often more siloed – are more vulnerable to cybercriminals, who are often the first to adopt new technologies, including AI, and add them to their armory.

### A Complex Landscape

The payments market in the US can be tricky to map.
At the enterprise level, there are multiple payment systems in addition to traditional wire transfers. These include: The Clearing House's Real-Time Payments system (TCH RTP®); the FedNow® service launched by the Federal Reserve in 2023, also designed for real time payments; and the Automated Clearing House (ACH) network.

Individual financial institutions might prefer one or more of these networks. A smaller institution, for example, might not want to support a network owned by its larger competitors.

Institutions looking to scale up and build out their functionality must follow their customers' lead and integrate with the full range of platforms, including international platforms, but these different systems do not seamlessly interconnect.

Further disruption is on the horizon. McKinsey notes that ecommerce marketplaces play an increasing role in the economy. In addition, new intermediaries, such as Square and SumUp have arrived in force. Further out, cryptocurrencies could become increasingly mainstream, with McKinsey reporting that 90 percent of central banks are working on digital currency projects.

## Technological Advancements in Payments

Both payment services and financial institutions are in a race to keep up with customer demands. End users expect more personalized seamless services, with an emphasis on mobility.

As services like FedNow® expand and increase their limits, that means ever more volume and value moving through systems, so payment processors must ensure their systems are up to the task. But they must do so without making their own systems unduly complicated, compromising resilience, or increasing headcount.

### Digital Transformation

These service providers must also contend with and seek advantage from broader changes in enterprise technology including the shift to the cloud and more distributed platforms. This transformation promises more resilient global infrastructure, in line with the instant, 24 x 7 world customers exist in.

But it also offers the chance to scale up services and transcend borders far more quickly. Cloud-native ecosystems also offer more rapid development and deployment of products and services.

### *AI and the Data Challenge*

AI and machine learning has long been a critical part of the payment systems landscape, particularly when it comes to fraud detection. Recent advances in AI open up new frontiers in these areas, leading to faster, more accurate decisions. They also raise the bar when it comes to automation and observability, underpinning SLAs and allowing for new services such as intelligent routing.

Fintechs and challenger banks might have an advantage here, as they are not held back by the bespoke legacy systems more mature institutions rely on. However, older organizations have the advantage of deep wells of data they can draw on – if they are able to open up and manage it.

### *Insight and Observability*

When payment infrastructure was built on static systems, both financial institutions and their end customers had low expectations when it came to the observability of both their assets and their systems more broadly. Now, as they see digital transformation operate across the rest of their ecosystem, they will demand more actionable insight.

## The Future of Payment Solutions

These challenges give us an outline of what payment solutions should look like in the future.

Customers (both business and consumers) will demand ever more seamless, and real time digital payments.

Business customers in particular will demand deeper insight into their transactions as they look to better manage their cash flow and other metrics and make their own operations as efficient and cost optimized as possible. They will also look to use that insight and data to evolve and finesse their own offerings.

### *An Agile Future*

Customers will want to access the full range of payment options and routes available, increasingly including international payment systems.

Meanwhile, both the customer and payment landscapes will change, as new entrants burst onto the market, and new and established players collaborate, merge and split.

This puts the onus on payments processors to develop systems and platforms that can exceed current demands and obligations. They must be agile enough to keep up with future demands and regulatory changes.

Traditional platforms targeted at specific payment rails or size of institutions and requiring a high degree of customization will struggle to meet these demands.

### *Infrastructure and Tooling*

Future payment solutions will demand rock solid underlying infrastructure. This will be needed to ensure that services are up and running 24 x 7. Security and redundancy will be essential so that payments can continue to be routed and processed, even in the event of local problems or outages or broader cyberattacks.

This infrastructure must also be capable of not just capturing a vast amount of data and metadata, but making it digestible and usable, in real time where necessary.

This is partly to ensure it can provide and fuel the instant fraud and compliance detection instant payments will require. But also, so that providers and their customers can use that data and metadata to manage the systems more efficiently, and to develop and fuel AI systems that deliver value to customers and companies.

This accelerated pace of development will necessitate a full range of tooling to allow rapid development and deployment of features and services.

## What FIS have Delivered with Money Movement Hub Built on AWS

FIS has been in the payments market since the late 1960s, and has pushed the modernization of the space, expanding its offerings organically and acquiring key companies in both payments and technology. It processed $12 trillion in 2023, handling over 17 billion transactions.

In recent years it identified an upcoming perfect storm in the North American payments market. Institutions have struggled to develop digital transformation strategies that could meet customers' demands for seamless, real-time payments,

both within the US and cross border, and keep up with ongoing regulatory changes.

FIS's solution is Money Movement Hub built on Amazon Web Services (AWS). The aim is to give customers access to the full spectrum of payment schemes, card payments, P2P, and ultimately bring in cross-border payments. At the same time, it helps them to meet stringent requirements around fraud detection.

It also had to have the flexibility to accommodate not just the core regional banks, but smaller institutions, including regional and community institutions and even microbanks.

### *Cloud-Native From the Outset*

The FIS team realized that this was best delivered through a cloud native approach. This would allow both rapid development and deployment of the hub on a resilient, scalable architecture, and provide the ongoing ability and flexibility needed to deliver new services and meet compliance changes.

Choosing the right partner to develop the hub was critical. FIS chose AWS due to its industry-leading position as a cloud provider, offering an unparalleled depth and breadth of services. AWS's robust and extensive global infrastructure enabled FIS to design and implement a highly available, fault-tolerant solution using databases across multiple availability zones and regions. This architecture ensures complete redundancy, maintaining operations even in the event of a regional outage. Furthermore, AWS's experienced professional services team provided essential expertise, collaborating closely with FIS to design and develop a cloud-native solution. This partnership accelerated the development process, allowing FIS to leverage AWS's cutting-edge tools and best practices for rapid innovation and deployment.

### *Built for an Agile Future*

Thanks to the hub's cloud native architecture and tooling, FIS can continuously develop and deploy new products and services and update existing ones in line with regulatory changes.

For example, Money Movement Hub builds on AI tooling for fraud detection and security, but FIS is also exploring how to use AI more broadly, using the vast amount of data generated by its services that is now easier to access and analyze.

This evolution sets the stage for more in-depth monitoring and observability. It also allows deeper understanding of and more intelligent responses to negative use cases, with automated repairs or exception processing.

This can mean, for example, not blocking an entire ACH file because of a single invalid record. It could also enable FIS to automatically create queues when a particular core banking system or function is unavailable.

In time, as more data is accumulated, FIS gains deeper visibility into the entire payments ecosystem, it can develop smart, intelligent routing, with the system choosing the most appropriate route for a payment based on factors such as price, volume, value, and an individual entity's preferences.

Customers, whatever their size, also benefit from a plug and play, highly observable, resilient platform for payments that they can embed into their back-office systems without the need for extensive customization or custom coding, now or in the future.

## Conclusion

Financial institutions can't afford to be complacent when looking to the future.

Customers will demand ever more convenient, easily consumed services. Businesses will be looking to make their businesses more efficient, whether by driving down costs or managing their cash flow. But they will need the appropriate tools and information to allow them to do this.

Likewise, financial organizations and their customers will continue to be targeted by cyber attackers, making secure resilient systems a requirement backed by government regulation and industry norms.

With a rapidly changing digital landscape, those systems must allow financial institutions sufficient agility to develop and deploy new services. Unpicking hard-coded legacy systems will not be an option.

To keep up and remain competitive, banks and other corporations will need a single platform that connects them with the full gamut of payment schemes, nationally and cross-border, and which offers them the resilience and agility they need to develop their own competitive services.

To see how Money Movement Hub is that platform, get in touch with FIS today.

## ABOUT FIS

FIS is a financial technology company providing solutions to financial institutions, businesses and developers. We unlock financial technology that underpins the world's financial system. Our people are dedicated to advancing the way the world pays, banks and invests, by helping our clients confidently run, grow and protect their businesses. Our expertise comes from decades of experience helping financial institutions and businesses adapt to meet the needs of their customers by harnessing the power that comes when reliability meets innovation in financial technology. Headquartered in Jacksonville, Florida, FIS is a member of the Fortune 500® and the Standard & Poor's 500® Index. To learn more, visit FISglobal.com. Follow FIS on LinkedIn, Facebook and X (@FISglobal).

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