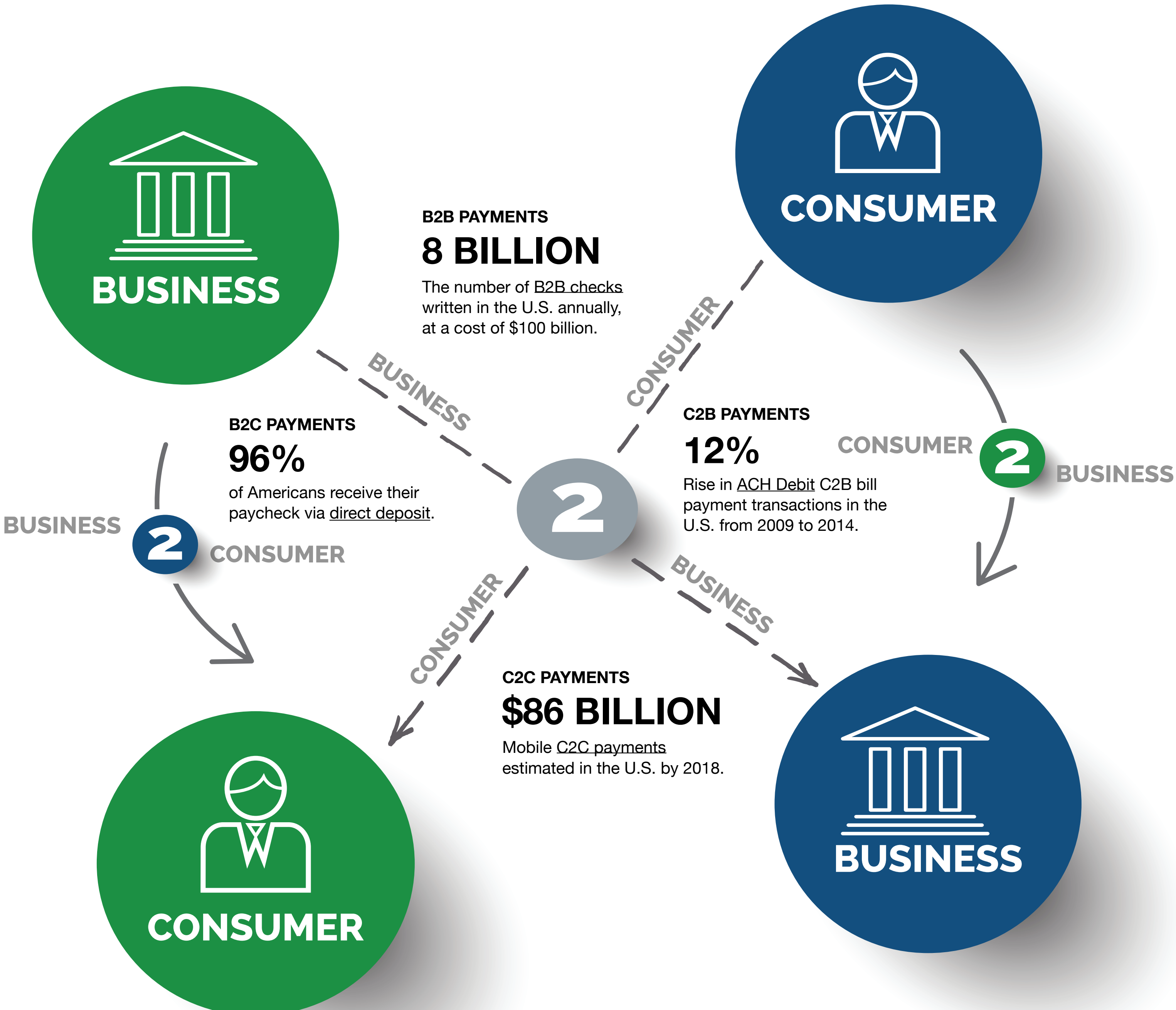
FASTER PAYMENTS TRACKER

PYMNTS.com

POWERED BY

NACHA
The Electronic Payments Association

JANUARY 2016



COVER STORY

As 2015 came to a close and 2016 begins anew, one thing was clear: the topic of faster payments was not the same old, same old of prior years.

Why do we care about faster payments? In a world full of cards, moving more and more to digital payments, isn't swiping or tapping or dipping or "pressing" fast enough?

Well, sometimes no. Because cards and mobile phones sometimes don't work. For one thing, the fastest payment most widely used for P2P is still good ol' fashioned cash. Pay the babysitter? Cash. Tip the doorman? Cash. Give your teenager some money for the weekend? Cash. Split the bill at dinner? Cash. Why? Because it's still the fastest form of payment and most ubiquitous between two people.

There are also instances when payment just needs to get there NOW and cash isn't possible, or secure. The bill is due TODAY. Not tomorrow. Not two days from now. NOW. The postmaster won't get it there in time and they don't take cards online for immediate payment. Uh oh.

Further, there are lots of situations when businesses need to make payments to other businesses immediately. The massive wire transfer business is evidence of this. Examples include cutting special payrolls for temporary workers or exception situations. Sending money to a new business partner in order to get goods shipped immediately. Multiple use cases when "next day," or longer, won't work to get the funding. And wires are either too expensive or simply don't meet the requirements.

A Federal Reserve analysis estimates that there are as many as 29 billion payments that potentially could move to real-time or near real-time delivery if so desired by businesses or consumers.

This has resulted in many heavyweight organizations urgently evaluating the best way to speed up payments within the U.S., with appropriate payment types, tools and security.

QUESTIONS? COMMENTS? BRILLIANT IDEAS?

If you would like to be included in this report and/or would like your information to be updated, please contact us at **fasterpayments@pymnts.com** and we will send you the data sheet required for submission.

COVER STORY CON'T

And while years before may have resembled lots of talk and limited action, 2015 yielded very real substance from some of the industry's most influential players.

First, NACHA -The Electronic Payments Association succeeded in passing a multi-year effort to adopt Same Day ACH rules and standards, which will begin its rollout in 2016. Most significantly, the final proposal requires all RDFIs to participate, guaranteeing ubiquity of access and functionality across all financial institutions. This is a huge win for all users and key to adoption.

Second, the country's largest financial institutions unveiled multiple commitments toward faster payment product offerings. clearXchange, owned by five of the largest banks in the U.S., solidified its commitment to safety and security with its announced acquisition by Early Warning. In the same timeframe, The Clearing House, also owned by the world's largest banks, announced key deals to build real-time payment capabilities with VocaLink and FIS.

Of course, innovators abound. From "standard" to "out there," options proliferate. Some look to the newest disruptor of payments, as well as the most controversial: the blockchain. Is it possible to fully separate blockchain capability from bitcoin and its inherent issues? Can you develop a new distributed ledger based on the protocol, ostensibly taking the good without the bad? Some innovators as well as financial institutions on a global basis say yes, and are investing to determine if there is a "there there" to help solve a problem in speed and efficiency of payments.

And through it all, the Fed continues to lead a massive effort (including over 300 faster payments task force committee members) to define exactly how to bring real-time payments to the U.S. safely and securely. They recently released a draft document of criteria for evaluating solutions, including the desired requirement for ubiquity by 2021. That's a tall order. Just ask the global payment networks.

COVER STORY CON'T

Where will we stand when we look back on 2016? We have created the Faster Payments Tracker to keep you apprised of what is happening throughout the year so you will know exactly that. What partnerships are being formed. What products are being launched. What solutions have failed to ignite or which ones have taken off.

In the words of Jan Estep, the President and CEO of NACHA, when it comes to actual real-time payments in the U.S., there still isn't ubiquity. That's what Estep called the "wild card" moving into 2016. "What can be done and what will be done in our very diverse ecosystem to bring us to something that is different than what we have today is the unknown, and determining which one of the systems can deliver ubiquity is still undetermined. Currently, none really gives us that widespread surety of being able to send payments to everyone," Estep explained.

That is the challenge. Is the U.S. up for it? Is the demand really there? Stay tuned throughout 2016 as we continue to track what is happening. We hope you enjoy the Faster Payments Tracker and we welcome your feedback at fasterpayments@pymnts.com.

QUESTIONS? COMMENTS? BRILLIANT IDEAS?

If you would like to be included in this report and/or would like your information to be updated, please contact us at **fasterpayments@pymnts.com** and we will send you the data sheet required for submission.

NACHA - THE ELECTRONIC PAYMENT ASSOCIATION

2015 was synonymous with faster payments for NACHA.

The dominant theme up until this point was a one step forward, two steps behind approach with faster payment capabilities. The reward of making transactions go through quickly and safely has been at odds with the risk of compromising data and, at times, money.

The financial industry with all its stakeholders including banks, industry bodies and even the Federal Reserve has been on the bend to make this happen.

NACHA for one was responsible for making same-day transfers a reality.

Previously known as the National Automated Clearing House Association, NACHA was established in 1974 as a nonprofit governing body. It is in charge of development and governance of the ACH network, which powers electronic transactions in the country and is funded by the 12,000 financial institutions it governs.

REVISED PROPOSAL

NACHA's Same Day ACH is a revised proposal from its earlier version in 2012 to include same-day clearing and settlement windows making the ACH network capable of settling transactions three times in a day. This proposal also includes very specific instructions around ACH credit availability, mandating that funds have to be made available to end-user accounts by the end of the business day by 5 p.m. local time for customer access. In addition, new windows have been established for cutoffs to accommodate both East and West Coast users. The dollar thresholds would be limited to $25,000 and would exclude international transactions.

Based on feedback, the proposal also required mandatory participation from all member banks. NACHA's reasoning for this is its efforts to consolidate and

NACHA - THE ELECTRONIC PAYMENT ASSOCIATION CON'T

make the ACH network ubiquitous. In an interview with MPD CEO Karen Webster, NACHA CEO Jan Estep said, "One word that we use in the ACH network quite regularly is ubiquity. That definition to us means that there is the certainty of absolutely being able to reach any of the 12,000+ financial institutions in the United States. So it really is a mandatory requirement on the receiving end, not the originating end."

To that end, under the new proposal, the receiving bank will obtain an interbank fee from the originating bank. The underpinning of the fee rests on developing the potential ground faster payments can cover.

"That balance is one of understanding that originating financial institutions have the opportunity to create and then support new innovative payment applications with Same Day ACH. What we've heard that really matters is the ubiquity. We do believe that interbank fee is a good way to make that connection and assure that all receiving banks can receive the payment," said Estep.

NACHA CONVINCES MEMBERS

NACHA members voted in favor of the revised proposal in May 2015. Specifically, it will be rolled out in a three-phase process, starting in September 2016.

- Phase 1: ACH credit transactions will be eligible for same-day processing. Example use cases include hourly payroll, and person-to-person (P2P) payments
- Phase 2: Same Day ACH debits will be added, allowing for a wide variety of same-day consumer bill payment use cases like utility, mortgage, loan and credit card payments.
- Phase 3: Introduction of faster ACH credit funds availability requirements for RDFIs; funds from Same Day ACH credit transactions will need to be available to customers by 5 p.m. RDFI local time.

NACHA - THE ELECTRONIC PAYMENT ASSOCIATION CON'T

The idea is for the ACH network to serve as a building block for number of products and services. NACHA CEO Jan Estep described the ACH network as "skinny by design," and said it allows for opportunities to build in terms of how funds are transferred directly from one institution to another — which are enabled by rules like Same Day ACH.

NEXT COMES THE FED

The proposal got the highest stamp of validation when the Federal Reserve Board approved changes to the proposal, despite facing opposition from other industry bodies like the National Association of Convenience Stores (NACS).

NACS criticized the proposal, comparing it to price fixing. It argued that an interbank fee is similar to a swipe fee, hence rendering ACH not a very low-cost alternative. However, this did not stop the Fed from incorporating it into the Operating Circular governing the bank's ACH services.

As further flattery, shortly after NACHA announced its rule change, the Federal Reserve Board requested comments on potential enhancements to its own same-day ACH service to align with NACHA's amended ACH operating rules. It is likely that this process was sped up after NACHA CEO Jan Estep was selected as a member of the Federal Reserve's Faster Payments Task Force in July 2015.

REDUCING EXCESSIVE TRANSACTION RETURN

NACHA put the ACH Network Risk and Enforcement Rule into effect as of late last week in September 2015. The amendment to its Operating Rules was intended to help reduce the number of ACH transactions that result in exceptions and returns.

NACHA CON'T

exceptions and returns.

The ACH Network Risk and Enforcement Rule institutes a few changes, all of which are geared toward reducing disproportionate levels of exceptions and returns. These instances not only impose additional costs on Receiving Depository Financial Institutions (RDFIs) but also have the potential to impact their customers as well. With the new rule in place, NACHA said it will have an increased ability to identify and enforce any "outlier" originators that may be the cause of exceptions and returns, as well as enforce rules related to unauthorized transactions.

All of this is geared toward the common aim of making payments faster, safer and more secure.

THE CLEARING HOUSE

TCH'S TIMELINE TOWARD REAL-TIME PAYMENTS

The race toward faster payments rails is heating up, and The Clearing House is on the tracks to build and operate its own path down the faster payments rails for the U.S., too.

The Clearing House settles $2 trillion every day on behalf of a subset of banks in the U.S., including some of the largest. In mid-December TCH announced a partnership with VocaLink that is designed to move money around the banks in the U.S. in real time. The partnership will help to allow U.S. consumers and businesses to send and receive payments in real time and create the enabling platform for the innovation of businesses and use cases around real-time payments.

VocaLink is the technology that enabled the U.K. Faster Payments initiative and the system that is live today in Singapore. TCH says this new system will tentatively launch in 2017 with testing to being late 2016, which would make it live something like two and a half years faster than it took VocaLink to implement the U.K. Faster Payments initiative, with about 12,980 fewer banks.

"Finalizing this partnership with VocaLink represents a significant milestone in our effort to make ubiquitous real-time payments a reality in the U.S. Once completed, customers will pay or receive money in real time from any financial institution, and with its innovative extensible design, the system will be built to provide the basis for payment solutions currently unimagined," James Aramanda, President and CEO of TCH, said following the completion of the deal.

The build out of the system will begin immediately, the firms said. The focus here will be on allowing companies to send and receive real-time payments across existing accounts at financial institutions, with message capabilities that "go well beyond basic payments," according to the two firms.

THE CLEARING HOUSE CON'T

"Building a real-time payment system is centered around meeting customer needs," Aramanda said in October, when the letter of intent with VocaLink was signed.

TCH INKS FASTER PAYMENTS DEAL

FIS also announced a deal with The Clearing House back in October to launch a real-time payments capability. This partnership will leverage the FIS real-time technology backbone that can enable its 3,000 FIs to have real-time payments capability. FIS also bought enterprise banking player SunGard back in the fall for $9 billion. TCH said it will continue to work with FIS, presumably to extend its capability, beyond that which it has today, to include more banks. But to make things murkier, FIS has its own faster payments initiative, although it isn't clear how much traction it has.

The new platform will comply with global standards (ISO 20022) and will, after debuting in North America, go on to be launched in Europe and Asia, with initial movement across major financial centers, the companies said. The link between the two companies follows, by several years, VocaLink's speed in bringing the U.K.'s Faster Payments Service to market. TCH is the sole private sector ACH and wire operator in the United States, with market share of about 50 percent of all transactions along those payments rails in the U.S. The main customers are commercial banks and credit unions.

TCH'S REAL-TIME PAYMENTS PLAN

TCH intends for the new real-time payments system to be compliant with the Consumer Financial Protection Bureau's (CFPB) "Consumer Protection Principles" for faster payment systems, which include ubiquity, commercial payments, seamless integration and conformity to international ISO 20022 standards, among others.

THE CLEARING HOUSE CON'T

"Our real-time payment system will enable customers across the country to make secure, convenient payments instantaneously," Aramanda said. "This real-time payment system will enable business to process invoices, governments to send disaster relief funds and individuals to pay contractors — all within an instant."

Conforming to the international ISO 20022 standards also has an international impact on TCH's real-time payments vision.

The ISO Real-Time Payments Group (RTPG), which comprises over 50 global experts facilitated by the trade body Payments UK, have been responsible for reviewing standards for cross-border real-time payments. The standards focus on assisting countries with domestic implementation as well as guaranteeing interoperability between systems.

According to the latest issue of the ISO 20022 newsletter, 18 countries are live with a working model of real time payments messaging services, 12 countries are "exploring/planning/ building." Additionally, a block of 17 countries are "exploring through a pan-Eurozone initiative," on how to standardize real-time ISO 20022 payments systems.

"In the short term, we believe these efforts will have a tremendous industry impact with multinational companies, who can use the same formats and procedures across their operations. In the long term, this effort provides the foundation for international interoperability among real-time payments systems," said Irfan Ahmad, vice president, product development and strategy at The Clearing House.

WHAT'S NEXT FOR TCH?

TCH moves forward with its vision for faster payments with a new leader on its team. Greg Baer was named the next President of the TCH, and brings to the organization his more than two decades of experience — specializing in law

THE CLEARING HOUSE CON'T

and regulation, both in the private and public sectors. Baer, who stepped into the role on Oct. 5, will also serve as General Counsel of The Clearing House Payments Company, a role in which he will oversee the legal, compliance and litigation functions for the organization's payments business. He will have an office in both The Clearing House's Washington, D.C., office and New York headquarters.

"The Clearing House is known for bringing thoughtful, credible analysis to the dialogue on how to continually strengthen the commercial banking industry and the financial system, and the organization requires leadership with extensive on-the-ground experience dealing with these important and consistently complex issues," said Paul Harris, Secretary and General Counsel of KeyCorp and Chairman of The Clearing House Association Board. "That is exactly what we have found in Greg. He knows the issues inside and out and has worked side-by-side with regulators and policymakers, helping to promote a stronger banking system throughout his career."

And perhaps that vision will mesh well with TCH's push toward faster payments in the U.S.

CLEARXCHANGE

When clearXchange first launched as a service that allowed people to send money using a cellphone number or an email address, competition was thin. But today, we need more than one hand to count the number of services that do the same thing.

EARLY ORIGINS

When launched in 2011 by Bank of America, JPMorgan Chase and Wells Fargo, clearXchange was one of the early payment networks, which was created as the banks' response to rivals like PayPal and Google Wallet, which was still in the works.

This newly formed bank consortium aimed to kill two birds with one stone with the platform. The post-crisis era of 2011 had tight regulatory control written all over it and this was bound to upset revenue growth and margins. The transition to moving cash digitally saved costs associated with check processing and also served as a great way to ensure the engagement of customers who might be tempted to stray to other services like PayPal and Venmo.

clearXchange is available to anyone with a U.S. bank account and more than 100 million online banking customers.

A more consolidated push toward payments came in 2013, when Michael Kennedy, a co-founder of clearXchange, was named the CEO. Kennedy brought over his expertise at driving mobile and emerging payments, strategy across all payment products, and technology research and development at Wells Fargo.

Under his leadership, clearXchange grew. In February 2014, Capital One was added, creating additional heft and access. This brought four of the largest seven banks in the country into the fold.

CLEARXCHANGE CON'T

The platform had a simple premise: a bank customer can transfer money to anyone by entering the phone number or email address. The service was free. While similar services like PayPal and Venmo existed before, banks claimed that clearXchange is the first platform "by and for financial institutions."

U.S. BANK ADDITION

A year later, in March 2015, clearXchange added U.S. Bank to its list of owners, making clearXchange the largest bank-focused P2P network, reaching 100 million online banking customers and 50 million mobile customers.

"We formed clearXchange based on customer feedback," clearXchange CEO Mike Kennedy told MPD CEO Karen Webster shortly before the news was announced. "Customers say how much they liked their loan and deposit products; how much they liked the online and mobile balance checking and paying their bills online. What they also wanted to know was why, if they are able to pay AT&T with their bank account, they couldn't also pay their gardener or their friend the same way."

Journalist Felix Salmon, in his Reuters column, agreed. He wrote "What I'm hoping is that clearXchange will help make that service a basic part of what banks do whenever you open a checking account — that electronic peer-to-peer payments will just get added to the list of free services along with electronic bill payments and fee-free check clearing."

And that's what the network intended to do: take payments directly from one user to another, instead of letting third-party apps do it. As more and more banks realized the potential there, more takers emerged. Four years after helping found it, Chase finally went live on the platform in June this year, adding 38 million online banking customers and 20 million mobile banking customers to the network.

CLEARXCHANGE CON'T

And Chase's addition also marks an important step for the network.

"Chase's addition gives clearXchange much greater potential," said Andy Schmidt, principal executive advisor for CEB TowerGroup. "When you have the top ACH banks all participating, you certainly have much greater pool to draw from."

The same month, the network also announced its real-time payments and funds availability accessible to all customers of member banks. There was also a push for more credit transfers between people, businesses and governments. In the offing are also capabilities beyond P2P transfers to include an array of services like government payments and B2C payments.

Gaining alignment among the largest banks in the country is not easy. Adding significant functionality is a large step forward alongside additional membership. In addition, the Fed has been separately encouraging a faster payment mechanism. The central bank announced the Faster Payments Initiative and Secure Payments Task Force in January to ignite and promote real-time payments to improve what it thinks is a "fragmented and outdated system for processing credit card, debit card and other financial transactions."

EARLY WARNING ACQUISITION

One of the key stumbling blocks with faster payments is how to manage the risk with heightened speed. An attempt to address that very issue was the acquisition of clearXchange by Early Warning in October of this year. The merging of Early Warning, a trusted leader in fraud prevention and risk management, and clearXchange helps to create one strong, solid, secure and expansive real-time payment network that is owned and operated by the banks.

Formed in 2006, Early Warning Services is backed by some of the nation's leading banks including: Bank of America, BB&T Corporation, JPMorgan Chase, Wells Fargo and First Data. One of the capabilities that Early Warning

CLEARXCHANGE CON'T

brings to clearXchange is its support of transactions initiated on the mobile platform. Customers can be authenticated in real time via Early Warning's integration to the mobile carrier networks.

2015 saw a lot of initial action on the faster payments front. 2016 may well be the year we start to see some traction on these platforms.

FEDERAL RESERVE BANK

The Fed plays an important role within the payments ecosystem. They have their own real-time initiative underway as part of a public-private sector collaboration effort after releasing a road map at the beginning of 2015. Broadly, the initiative aims at producing an end-to-end payment solution that could help increase profitability and create new social benefits.

The five primary goals of the Federal Reserve as mentioned in its 2013 Consultation Paper include:

1. Speed: A ubiquitous, faster electronic solution that could be applied to a variety of use cases varying from business to personal payments.
2. Security: A secure solution that could pace up with the rapidly evolving cybersecurity threats.
3. Efficiency: To bring a reduction in transaction costs through a broader shift toward electronic payments.
4. International: To provide faster and cost-effective cross-border payment solutions to American consumers and businesses.
5. Collaboration: A widespread identification and adoption of the solutions among payments participants in the market.

Esther George, the president and CEO of the Federal Reserve Bank of Kansas City, spoke at a PYMNTS.com conference in August and stated that the faster payments change could be considered “one of the biggest undertakings in the payments system in the United States.”

The Fed took an imperative step forward in its commitment to this effort with the appointment of task forces assigned with closing the gaps in the payment industry and building a faster and secure roadmap for the industry this year.

FEDERAL RESERVE BANK CON'T

"First, we want to gain the industry's insight in understanding end-user needs … And second, we want to engage with the industry to bring forward improvements in U.S. payments that accelerate the speed, increase the efficiency, and enhance the convenience, accessibility, safety and security of payments," said Sandra Pianalto, former President and CEO of the Federal Reserve Bank of Cleveland.

ESTABLISHING THE TASK FORCES

The two task forces, which constitute nearly 500 members from an array of payments industry stakeholders, were segregated into a "Faster Payment Task Force" and the "Secure Payments Task Force."

The task forces were brought up to collaborate and bring together the goals of the organizations interested in the future of U.S. payment systems, including everything from financial institutions and technology providers to end users, associations and consultants.

The Faster Payments Task Force was assigned to identify and weigh alternate methods for implementing safer payment methods, which are easy to widely implement.

The Secure Payments Task Force, on the other hand, was assigned to advise on the security of payment methods, help prioritize advanced payment system security along the roadmap and consult on security issues of the work for Faster Payments Task Force.

Essentially, the task forces have been put together by the Federal Reserve to aggregate a wide spectrum of participants — ranging from businesses to consumers — which could actively help mold alternative payment methods being considered for introducing faster payment methods in the America market.

FEDERAL RESERVE BANK CON'T

"Diverse and committed membership will ensure a broad range of perspectives are considered as we pursue improvements to the U.S. payment system," said Esther George, the executive sponsor of the task forces.

LEADERSHIP ESTABLISHED

To drive the initiative, in July the Fed announced the steering committees of both the Faster Payments Task Force and Secure Payments Task Force. Other than advising the Federal Reserve task force chair on meeting agendas and assisting in prioritizing task force activities, the steering committees were also set up to help establish and produce task force perspectives, recommend scope of work groups and to determine items in need of task force deliberation.

To direct the major payment system initiatives, the Federal Reserve has appointed several payment industry veterans over the year.

Gordon Werkema was appointed the new Payments Strategy Director to help make nationwide payment systems fast and efficient, and bolster infrastructure to better support cross-border transactions.

In July, the Fed Reserve elected Sean Rodriguez, Sr. VP at the Federal Reserve Bank of Chicago, as its new Faster Payments Strategy Leader and a chair member of the Faster Payments Task Force and its 300+ members.

Federal Reserve Bank of Chicago's Senior VP Todd Aadland was the latest to be appointed as a payments security strategy leader who would work in coherence with Werkema and Rodriguez.

The task force also elected NACHA's CEO Jan Estep as a member of its steering committee to advise the Federal Reserve's Faster Payments Task Force. Estep's appointment came as the Fed Reserve sought help with prioritizing agendas and action plan for the task force. Furthermore, Estep and the rest of the steering committee have also been able to establish and recommend what work needs to be done and how it can be distributed across

FEDERAL RESERVE BANK CON'T

the task force. "As the Fed work began, NACHA shared findings from its ACH Blueprint, developed with the industry in 2012, to discuss options for how to collectively leverage the strengths of the ACH Network in building for the future."

Estep's appointment came at a time when NACHA and The Clearing House are developing their faster payments initiatives, which they say would work in tandem with the Fed Reserve.

"We really hope that the work that we have already begun can be leveraged so that the industry does not have to have duplicate work into the future. Our outreach, sharing and bringing stakeholders together will and can help the Fed as they try to do the same," Estep added.

DRAFT DOCUMENT RELEASED

In October of 2015, Esther George delivered a speech announcing the most recent results of the task force, including a draft document outlining criteria to be used in evaluating new faster payment solutions brought to the marketplace.

The criteria, in its current form, aligns against the Fed's stated objectives of ubiquity, efficiency, safety and security, and speed while providing appropriate legal and governance structures. Solutions would be rated on each criteria, ranging from not effective to very effective. For example, in order to be deemed "effective" on the Implementation Timeline criteria, a solution would need to have a "credible plan to achieve initial implementation by 2019 and ubiquity by 2021."

In George's concluding remarks, she notes the challenges ahead to move the world's largest, most complicated payment environment to a faster, more real-time system. "I remain confident that this collaborative approach to payment system reform maximizes our chances for success. I am also realistic. The task

FEDERAL RESERVE BANK CON'T

forces have made substantive progress, but there is some distance to go before realizing our goals. I fully expect that we will face challenges along the way. But I am convinced the end is worth the journey, and the Federal Reserve is committed to working with industry stakeholders to get there for the public's sake."

BLOCKCHAIN

The year 2015 saw a broad shift in the evolution of blockchain technology, with leading American banks and tech companies moving to utilize it as the rails for faster payment processing in the banking industry.

Blockchain applications are being discussed for wide-ranging use cases, ranging from those similar to real-time to just, well, faster than arcane mechanisms used today for transactions such as settlement of syndicated loans.

A major move toward adoption of blockchain technology was marked with the establishment of a coalition formed by a global consortium put together by R3 CEV, a technology company.

The coalition, which so far constitutes over 30 banks, is working together to leverage blockchain for quickly expanding new technologies and use cases for financial institutions across the world by developing common standards that could be used to implement faster post-trade settlement for banks among other use cases.

The latest to join the group include BNP Paribas, Canadian Imperial Bank of Commerce, ING Bank, Macquarie Bank, and Wells Fargo & Co.

FINANCIAL INSTITUTIONS JUMP ON THE BLOCKCHAIN BANDWAGON

The rapid growth of interest among mainstream financial institutions comes against an increase in use cases of the ledger-based technology. Barclays recently identified as many as 43 use cases, including many which promise to take away the most basic anomalies in the banking industry, which are known to have slowed down payment processing such as checks.

Santander, the second largest bank in Europe and tenth largest in the world, also identified 20-25 use cases that could be used to speed up different areas of the global financial industry including trade finance, syndicated lending and

BLOCKCHAIN CON'T

collateral management, and international money transfers.

Switzerland-based banking giant UBS is yet another major player who has entered the dome to utilize the technology. Earlier this year, UBS established a blockchain research lab in London to work on developing new cryptocurrencies that could be linked to real-world currencies and connected to central bank accounts.

ROLE OF TECH COMPANIES

Whilst blockchain is fast capturing the interest of FinTech companies around the world, the technology has also garnered attention from tech companies who are increasingly investing in bitcoin and blockchain-based startups.

One of the biggest tech players who recently joined the blockchain bandwagon is Microsoft. The Seattle-based company reportedly plans to integrate blockchain technology into its cloud-based platform, Azure. The company has also partnered with ConsenSys to develop solutions using blockchain platform Ethereum, which will enable companies to generate quickly executable smart contracts, and track bitcoin transactions. They further claim that it is not bitcoin dependent.

According to Microsoft, the Ethereum based blockchain will allow its users to update their contract every 15 seconds through an Ethereum powered currency, which would speed up transactions by 40 times more than bitcoin-based blockchain.

Microsoft also recently expressed interest in adding new functionalities to its blockchain toolkit through Ripple's Interledger Protocol.

Cross-border payments network Ripple, which is one of the top funded FinTech startups, created the Interledger Protocol (ILP), a free, open source and neutral Web protocol that provides an interface for different ledgers to interact and

BLOCKCHAIN CON'T

maintain their balances in their own units.

With a wider adoption of the protocol, Ripple Lab's CEO Chris Larsen said, the speed of cross-border payment transactions is set to become real-time, whereas the cost is practically zero.

Another report by Santander InnoVentures, Anthemis and Oliver Wyman corroborates the expected dramatic dropdown in costs spurring from the fast transaction processing capabilities of blockchain technology. Banks, the report said, could save up to $15 billion to $20 billion in processing cross-border payments, regulatory compliance and securities trading by 2022.

Blockstream was yet another network, which in October announced the launch of its first production side chain called Liquid, which reportedly processes transactions almost 100 times faster than traditional financial institutions.

The company said its blockchain-based product would help improve liquidity in virtual currency transactions between accounts — an event known as Interchange Settlement Lag that is tied to technical and liquidity inefficiencies including latency and confirmation.

NYSE AND NASDAQ TURN TO BLOCKCHAIN

Tech companies, however, are not the only ones exploring the scope and practicality of using bitcoin's backend technology. In May this year, NASDAQ, the popular securities exchange that is preferred by tech companies announced plans to employ blockchain technology to maintain records of the NASDAQ private market, which manages pre-IPO stage share trading for companies.

With the adoption, NASDAQ's CEO Bob Greifeld noted, the blockchain network could accelerate the time it takes to finalize deals in the U.S. securities market and transform how the financial industry handles transactions, thus reducing

BLOCKCHAIN CON'T

trading settlement time.

"Blockchain technology will provide extensive integrity, audit ability, governance and transfer of ownership capabilities," NASDAQ said.

NASDAQ, however, isn't the only player in the financial market trying to leverage blockchain technology. The New York Stock Exchange is also gearing up to see widespread adoption of the technology with its participation in bitcoin exchange Coinbase's $75 million funding round.

With the investment, NYSE said, it plans on supporting Coinbase's growth though its global distribution system.

ON THE DOWNSIDE

There are numerous points which still raise questions about the viability of scale and capability of using the blockchain for significant scope by financial institutions.

First, it is impossible to separate the bitcoin from the blockchain. Bitcoin is the "transport" mechanism that moves assets across the blockchain. And for most banks, that is fatal.

Second, the blockchain is "permissionless" – which, in theory, sounds great. But perhaps not when trillions of dollars are at stake. There are no standards, governing bodies or other intermediaries to turn to if things go wrong. In fact, that is the whole premise of the blockchain: to eliminate the intermediary. But it's not clear that people or businesses want a permissionless system underpinning our global financial services system.

Third, in a blockchain world, it's all about the miners – those who operate the exchanges at the endpoints of the blockchain. It is entirely up to them to invest to maintain the technology. And the economics of their business is tied to the

BLOCKCHAIN CON'T

value of bitcoin, which has seen better days. Critics claim that the current technology is too slow to support the volume discussed by global financial institutions, but upping that game requires investment by the miners. That might be both hard and unrealistic without the promise of a return on that investment.

Fourth, the blockchain operates on a structure that is irrevocable and anonymous, which its advocates tout at its strongest advantages. Financial institutions are used to irrevocability, such as wires. Permissionless and anonymity, however, is antithetical to how banks are regulated and like to operate.

Innovation, perhaps at the bleeding edge?

Finally, a large threat that could possibly harm far more companies gearing to rely on the technology for security was revealed in a March 2015 report by Interpol. That report identified open space within the ledger which could be used for malware or to host a number of illegal activities.

As an example, for eCommerce company Overstock, blockchain proved to be too good to be true.

In November this year, Overstock hinted at plans to shut down its blockchain trading subsidiary "Medici" after the company lost $117,000 in its investments in the digital currency space.

Overstock's CEO Patrick Byrne hinted that the company had spent roughly $2 million to $3 million on the business. Even though the spending was directed at new opportunities in the ecosystem, it proved to be hard to manage with its retail business roots.

In the long run, perhaps solutions which operate on a distributed ledger protocol, and software technologies that provide for flexible and efficient payments between relying parties may have potential — and the blockchain certainly has raised a number of those conversations. But the blockchain seems way too risky for the future of our financial services system.

ABOUT

NACHA — THE ELECTRONIC PAYMENTS ASSOCIATION

Since 1974, NACHA – The Electronic Payments Association has served as trustee of the ACH Network, managing the development, administration and rules for the payment network that universally connects all 12,000 financial institutions in the U.S. The Network, which moves money and information directly from one bank account to another, supports more than 90 percent of the total value of all electronic payments in the U.S. Through its collaborative, self-governing model, education, and inclusive engagement of ACH Network participants, NACHA facilitates the expansion and diversification of electronic payments, supporting Direct Deposit and Direct Payment via ACH transactions, including ACH credit and debit payments; recurring and one-time payments; government, consumer and business transactions; international payments; and payments plus payment-related information. Through NACHA's expertise and leadership, the ACH Network is now one of the largest, safest, and most reliable systems in the world, creating value and enabling innovation for all participants. Visit nacha.org for more information.

PYMNTS.COM

PYMNTS.com is reinventing the way in which companies in payments share relevant information about the initiatives that shape the future of payments and commerce and make news.

This powerful B2B platform is the No. 1 site for the payments and broader commerce ecosystem by traffic and the premier source of information about "what's next" in payments. C-suite and VP level executives turn to it daily for these insights, making the PYMNTS.com audience the most valuable in the industry. It provides an interactive platform for companies to demonstrate thought leadership, popularize products and, most importantly, capture the mindshare of global decision-makers. PYMNTS.com… where the best minds and best content meet on the Web to learn "what's next" in payments and commerce.

DISCLAIMER

The Faster Payments TrackerTM may be updated periodically. While reasonable efforts are made to keep the content accurate and up-to-date, PYMNTS.COM: MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, REGARDING THE CORRECTNESS, ACCURACY, COMPLETENESS, ADEQUACY, RELIABILITY OF OR THE USE OR RESULTS THAT MAY BE GENERATED FROM THE USE OF THE INFORMATION OR THAT THE CONTENT WILL SATISFY YOUR REQUIREMENTS OR EXPECTATIONS. THE CONTENT IS PROVIDED "AS IS" AND ON AN "AS AVAILABLE" BASIS. YOU EXPRESSLY AGREE THAT YOUR USE OF THE CONTENT IS AT YOUR SOLE RISK. PYMNTS.COM SHALL HAVE NO LIABILITY FOR ANY INTERRUPTIONS IN THE CONTENT THAT IS PROVIDED AND DISCLAIMS ALL WARRANTIES WITH REGARD TO THE CONTENT, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT AND TITLE. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF CERTAIN WARRANTIES, AND, IN SUCH CASES, THE STATED EXCLUSIONS DO NOT APPLY. PYMNTS. COM RESERVES THE RIGHT AND SHOULD NOT BE LIABLE SHOULD IT EXERCISE ITS RIGHT TO MODIFY, INTERRUPT, OR DISCONTINUE THE AVAILABILITY OF THE CONTENT OR ANY COMPONENT OF IT WITH OR WITHOUT NOTICE.

PYMNTS.COM SHALL NOT BE LIABLE FOR ANY DAMAGES WHATSOEVER, AND, IN PARTICULAR, SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, OR DAMAGES FOR LOST PROFITS, LOSS OF REVENUE, OR LOSS OF USE, ARISING OUT OF OR RELATED TO THE CONTENT, WHETHER SUCH DAMAGES ARISE IN CONTRACT, NEGLIGENCE, TORT, UNDER STATUTE, IN EQUITY, AT LAW, OR OTHERWISE, EVEN IF PYMNTS.COM HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME JURISDICTIONS DO NOT ALLOW FOR THE LIMITATION OR EXCLUSION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, AND IN SUCH CASES SOME OF THE ABOVE LIMITATIONS DO NOT APPLY. THE ABOVE DISCLAIMERS AND LIMITATIONS ARE PROVIDED BY PYMNTS.COM AND ITS PARENTS, AFFILIATED AND RELATED COMPANIES, CONTRACTORS, AND SPONSORS, AND EACH OF ITS RESPECTIVE DIRECTORS, OFFICERS, MEMBERS, EMPLOYEES, AGENTS, CONTENT COMPONENT PROVIDERS, LICENSORS, AND ADVISERS.

DISCLAIMER CON'T

Components of the content original to and the compilation produced by PYMNTS.COM is the property of PYMNTS.COM and cannot be reproduced without its prior written permission.

You agree to indemnify and hold harmless, PYMNTS.COM, its parents, affiliated and related companies, contractors and sponsors, and each of its respective directors, officers, members, employees, agents, content component providers, licensors, and advisers, from and against any and all claims, actions, demands, liabilities, costs, and expenses, including, without limitation, reasonable attorneys' fees, resulting from your breach of any provision of this Agreement, your access to or use of the content provided to you, the PYMNTS.COM services, or any third party's rights, including, but not limited to, copyright, patent, other proprietary rights, and defamation law. You agree to cooperate fully with PYMNTS.COM in developing and asserting any available defenses in connection with a claim subject to indemnification by you under this Agreement.