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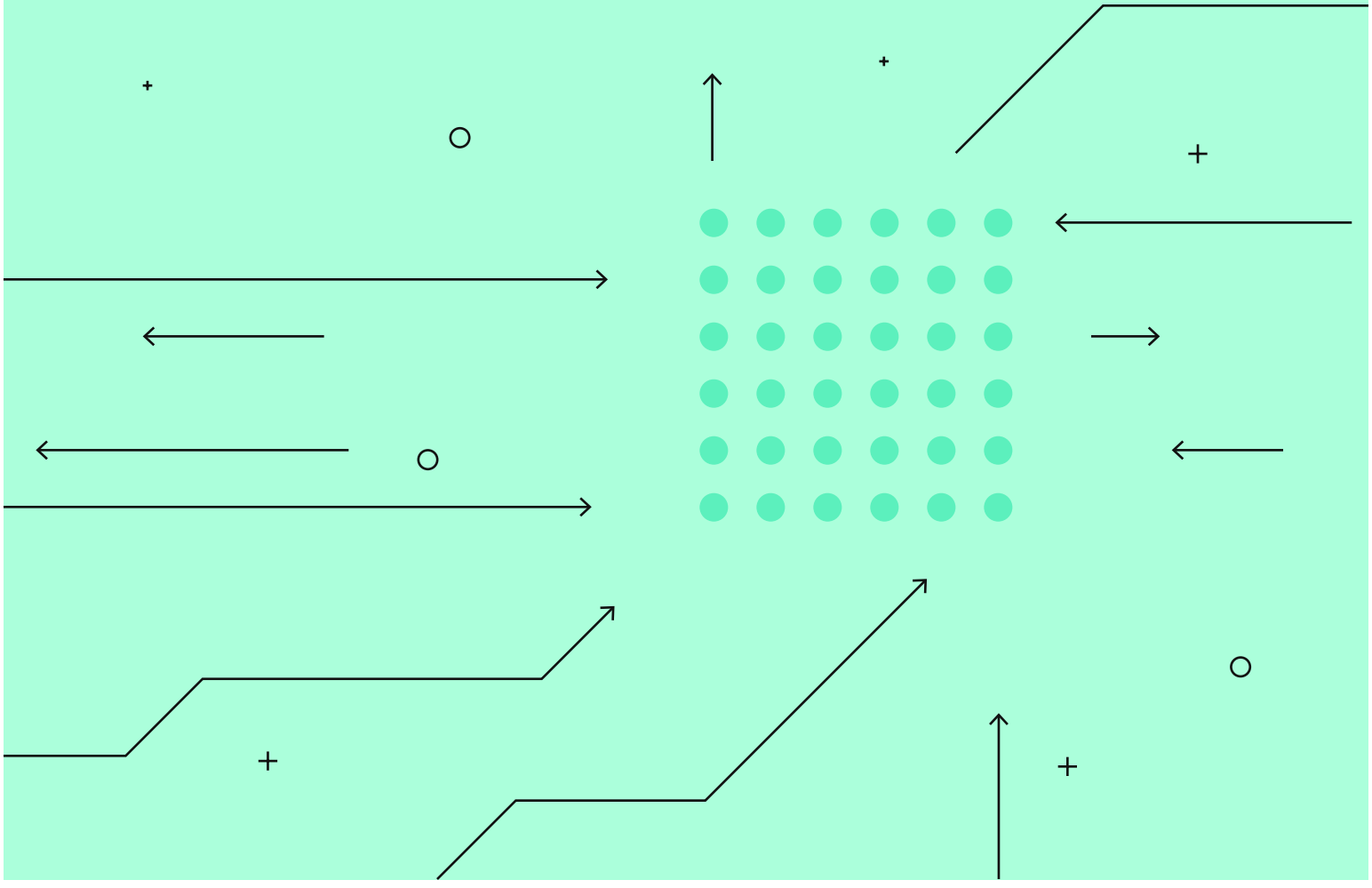
A modern guide to ACH

Everything you need to know
to start accepting ACH payments



More than 82 percent of the value of all U.S. payments goes through ACH.

In 2019, there were approximately 23 billion ACH transactions transferring over $51 trillion. Same-day ACH transactions more than doubled in 2018, and the value of those payments increased 83% this past year. ACH expansion has outpaced economic and population growth.

But most consumers don't realize they're leveraging the network—or know what it is.

Plaid is democratizing financial services through technology. We build beautiful consumer experiences, developer-friendly infrastructure, and intelligent tools that give everyone the ability to create products that solve big problems.

Learning about fintech is a necessary step in that journey. In this guide, we cover the basics of ACH payments–the network behind your direct deposit on payday, your Venmo transfers, and recurring utility bill. We'll cover what ACH is, how it works, and how it's regulated today.

Read the whole guide, or jump to the section that most interests you. You can find further reading about all things ACH, regulations, and payment infrastructure on our online publication, Fin.

Thank you,
Plaid

Contents

ACH, or Automated Clearing House, is a payment method that allows money to be sent electronically between bank accounts. ACH powers things like paychecks sent via direct deposit, recurring bill payments, and peer-to-peer exchanges like Venmo or PayPal.

Essentially, ACH facilitates bank-to-bank transfers—the kinds of transactions that don't go through credit or debit card networks. If you've ever started a new job and shared your account bank account and routing number to set up direct deposit, then you've authorized an ACH payment from your employer to your bank account.

To make the transfer, ACH uses the transaction amount as well as two pieces of customer information: the bank account and routing number for account validation. A few types of transactions can be handled via ACH: direct deposits and direct payments, as well as settlements for credit, debit, and ATM transactions.

> *ACH payments and deposits are executed through ACH transfers which take the form of a credit or debit that is issued once an account is authenticated.*

The ACH network is likely behind how your paycheck is deposited and your credit card auto payment. You utilize the network whenever you use Venmo or QuickBooks. For businesses, making payments via ACH has its benefits, one of which is lower transaction costs.

While cheaper than credit cards, ACH is slower. Unlike the credit card network, the ACH network doesn't provide real-time authorization of funds. ACH payments currently take one to four days.

In 2018, NACHA, the organization that oversees the ACH network, kicked off Phase 1 of its Same Day ACH rule. This update is being implemented through a three-phase process that will allow ACH payments to be settled on the same day. Phase 3 is scheduled to go into effect by 2021 (as of March 12, 2019). This date reflects a recent update by NACHA.

Most organizations are transforming their processes to accommodate the digital transformation - and this includes financial institutions. It's important to understand the evolving financial ecosystem and the networks that ensure the security, speed, and cost of your bank transfers.

There are no fees associated with ACH

Using ACH for payroll direct deposit is generally more efficient too, because it minimizes manpower and ensures that employees get paid on time

Faster processing times, increased security, and convenience for recurring billing are also major reasons for businesses to use ACH

What does ACH stand for

"CH" STANDS FOR CLEARING HOUSE

A clearing house is an establishment where checks and payments from various banks can be exchanged and settled.

Clearing houses emerged in the 19th century when checks skyrocketed in popularity; traditionally, bank employees had to hand-deliver checks to every bank they were drawn upon, but soon could not keep up with demand. As a result, employees began meeting in public places to exchange their checks all at once and settle their payments. They were literally using these places for the purpose of clearing checks—hence the name. Read more about the history of ACH here.

Clearing houses also exist for clearing the sales and purchases of stocks and securities. Organizations like Fedwire or the CME Group exist to ensure that the two firms entering into a sale of a security honor their commitments to do so.

The ACH Network works similarly in that it acts as a conduit for the transaction between two bank accounts. In addition, it relies on physical clearing houses like the Federal Reserve, the American Clearing House Association, New York Automated Clearing House, or VisaNet ACH Services.

These clearing houses receive electronic information in batches from a bank that either sends or requests money (called the Originating Financial Depository Institution, or OFDI). The clearing houses process the information and send it on to the second party's bank (called the Receiving Financial Depository Institution, RFDI), whose account holders either receive the transmitted funds or are requested to furnish them, in the case, for example, of an automatic bill payment.

"A" STANDS FOR AUTOMATED

ACH is a batch processing system, which means that transaction information is collected and processed in batches rather than in real time.

The batch processing system that the ACH network relies on is run through a series of computers that store information as it comes in and forwards it at the designated time. This information is sent in ACH files, which adhere to a very specific format. For example, all ACH files have to be 94 characters long and contain specific information such as the receiver's name, number and amount of transactions, and purpose for payment. As a result of this standardization, most ACH payments don't require any human intervention.

This is one of the biggest differences between ACH payments and wire transfers, which seem similar on the surface because they are both electronic payments made directly between bank accounts. Wire transfers, however, are more immediate and require action to be taken by employees at both parties' banks.

This is part of the reason why wire transfers can cost upwards of $30, while ACH payments usually cost less than a dollar.

...wire transfers can cost upwards of $30, while ACH payments usually cost less than a dollar

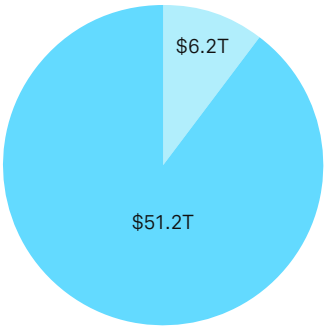
The basics: How it works

Only banks can initiate ACH transactions, which meant that historically businesses had to partner with banks in order to set the ACH process in motion. Whoever originates the payment is the Originator, while their partner bank is the ODFI (Originating Depository Financial Institution).

Let's say an electrical company's customers pay their monthly bills on a recurring basis via ACH. When these customers enroll in automatic bill pay, they provide authorization for their utility to pull money from their accounts on a recurring basis.

To get paid, the utility would originate an ACH debit transaction on its customer's account, making the utility the Originator, its merchant bank the ODFI, and its customer's bank the RDFI (Receiving Depository Financial Institution). Here's how it works.

U.S. PAYMENTS IN 2018



ACH transactions account for nearly 82% of payments made in the U.S. by dollar value

- Visa & Mastercard
- ACH

Source: NACHA + The Nilson Report

Step 1 // Verify accounts

Verifying that accounts exist and have sufficient funds can help prevent errors, and it's the Originator's responsibility to do so.

What's more, beginning in March 2021, all businesses that accept ACH payments are subject to a new NACHA rule. Beyond authenticating accounts and making sure they have sufficient funds, they are required to implement "commercially reasonable fraudulent transaction detection systems."

Step 2 // An ACH transaction is initiated

As the Originator, the electrical company sends ACH files, which contain the amount of the transaction and the appropriate routing and bank account numbers, to Wells Fargo, its partner bank and the ODFI in this situation. (Wells Fargo also happens to have been the largest originator of ACH payments in 2014, initiating 2.6 billion debits and 1.5 billion credits.)

Step 3 // ACH transactions accumulate

Not every bank is an ODFI, which means those that do act as ODFIs typically handle a high volume of ACH files. Rather than forward them as they come in, it will accumulate ACH transactions throughout the day for later processing. This makes the ACH Network a batch processing system.

Step 4 // ACH debits & credits are applied

Wells Fargo will credit the company's account—and debit the end customer's—and essentially create a hold for the amount. Note that Wells Fargo is making an assumption here: It doesn't check whether the customer's account exists or has sufficient funds, which means this bank is also assuming some risk.

Step 5 // ACH transactions are sent to a clearing house

At the end of the day, Wells Fargo forwards all the ACH files it has received in batches to a clearing house. Typically, it's the Federal Reserve, but the American Clearing House Association, the New York Automated Clearing House, and VisaNet ACH Services are among approved alternatives.

The ACH transactions are sorted and sent to their respective Receiving Depository Financial Institutions, so called because they receive the ACH files from the clearing house. In this case, let's say the customer uses Bank of America, which would be the RDFI. When Bank of America receives the ACH file for this transaction, it will note a debit on the customer's account for the right amount of money.

At this point, no money has actually changed hands, though the bank accounts may now reflect pending transactions.

Step 6 // ACH transactions settle & post to the banks' reserve accounts

Then comes settlement, which follows the same principles of Net Settlement, or the process through which banks resolve all their transactions at the end of the day. Each ACH credit transaction typically settles in one to two business days, and each debit transaction settles in one business day. In our example, the settlement would follow these steps:

1. The clearing house calculates the net debit and credit positions of the utility's Wells Fargo account and the customer's Bank of America account and posts them to the banks' reserve accounts.
2. The two banks rely on their Settlement Account, which is funded by each bank's own capital, to fund the transfers, pending the actual net settlement of funds.
3. Once Bank of America receives the information, it reconciles the accounts. It checks to make sure the customer's account has sufficient funds to complete the transaction. If it does, the transaction is cleared. If it doesn't, they'll get an error message back.
4. Finally, the money is officially deducted from the customer and deposited into the utility's company's Wells Fargo account. In other words, it's settled among the banks.

Third-party processors may also come into play when an originator does not have direct access to an ODFI, as not all banks play this role. Some of the most common processors are Stripe, Apex, and Braintree.

How is ACH different from other payment methods?

LESS EXPENSIVE THAN DEBIT CARDS

While debit card transactions and ACH debit transactions may seem similar, there are important differences.

Both remove money directly from your checking account, But the former requires a PIN or signature to verify the account and its available funds at the point of sale, while the ACH debit transaction uses routing and account numbers to authenticate the user's account.

When using a debit card, a customer also has the option of making an "offline" or "credit" transaction, which bypasses the network and gives the customer essentially a mini-loan without ensuring available funds. The payment is then processed at the end of the day. In addition to making payments, of course, the ACH network also allows users to receive payments, which the card network does not enable.

Unlike card networks, there are also no fees associated with ACH payments.

FASTER THAN CHECKS

ACH was developed to provide an electronic alternative to checks.

Electronic and card payments have drastically decreased check usage in recent years, and ACH has a few particular advantages over the paper method it was designed to replace. For example, it is more convenient and efficient, eliminating the need to manually write and deposit checks, which adds to overall user satisfaction.

Additionally, verifying that accounts exist and have sufficient funds can help prevent errors. Moreover, verifying that a person claiming to own an account actually does helps prevent fraud.

ACH authentication methods

Authentication validates that senders and recipients have valid bank accounts and that they are who they say they are.

Without proper authentication, participants in an ACH transaction run the risk of misdirected or non sufficient funds (NSF)—not to mention costly and time-consuming processes to reverse any errors.

Authentication historically has been an inefficient process, where it has been used at all. Digital authentication services have sought to improve this process in parallel with NACHA's same-day ACH payments.

WHAT IS ACCOUNT VALIDATION?

Account validation is roughly equivalent to authentication. According to NACHA research, at least 75% of industry participants state that they would like their account validation to certify that:

- The routing and transit number is valid
- The account number is valid for a given financial institution's routing and transit number
- The name on the account matches the name claimed by a party to the ACH transaction
- The account is eligible to receive an electronic entry

It's important for users of ACH to prevent a broad array of ACH return codes, including both insufficient funds (known as "R01") and administrative errors (all others, such as a closed account). New digital authentication methods can prevent ACH error codes like these that were largely not preventable using traditional account validation methods.

The Herndon, Va. based ACH governing body says same-day transactions totaled 177.9 million, up 137% from 2017, with a value of $159.9 billion versus $87.1 billion the year before. The same-day debit transaction count was 79.6 million with a value of $60.7 billion. Same-day credit transactions totaled 98.3 million with a value of $99.2 billion.

Same-day ACH transactions more than doubled in 2018.

Manual Validation

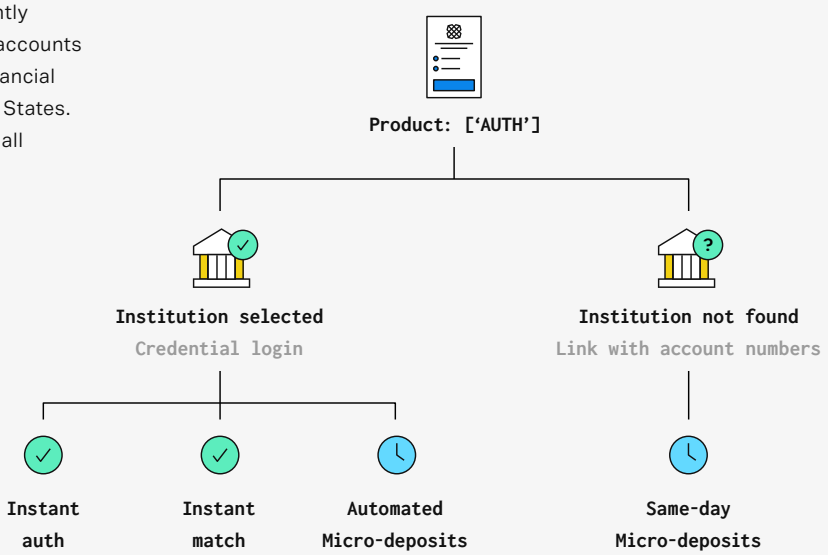
In this method, a counterparty to an ACH transaction obtains a consumer's check to manually confirm the account and routing number. Alternatively, a counterparty may contact a consumer's bank in order to validate this information.

Manual validation typically works best for one-off ACH transactions—and certainly not for organizations processing a high volume of ACH. Even when the volume is low enough for manual validation to be pragmatic, the process can be beset by delays (how many consumers regularly carry their checkbooks these days?) and human error.

Pre-notes

Pre-notes involve sending a $0 transaction through the ACH network to validate that a routing and account number combination is valid.

The process typically takes several days and verifies only that an account and routing number combination exists—not the name on the account or its balance. But the process requires little effort on the consumer's part, particularly relative to microdeposits.



Microdeposits

Microdeposits are the most common form of account authentication, and likely familiar to anyone who has, for example, opened and funded an online brokerage account.

With microdeposits, a party to an ACH transaction deposits one to two small amounts (typically less than a dollar) into a consumer's account. The consumer then checks the account and verifies the deposit amounts.

Verifying microdeposits requires three to four days, in most cases. Additionally, they place a burden on a consumer to go through a multi-step process of logging into their bank account, viewing deposit amount(s), and communicating with the ACH counterparty to verify these amounts.

Finally, microdeposits confirm only that a consumer has access to an account, but not that the name on the account matches a user's claimed name, or that sufficient funds exist in the account for a debit payment.

Instant, credential-based authentication

Credential-based authentication offered by third-party providers like Plaid has gained popularity of late.

In this method, a user enters their online bank account credentials, typically without leaving an ACH counterparty's website or customer portal. Credentials are securely passed to the financial institution. In our case, authentication can usually be performed in 11 seconds or less.

In addition to the obvious speed benefit—11 seconds versus three days—this validation method offers several advantages:

- Protect against a wider array of administrative ACH return codes, by returning fields such as account holder name, address, account type, and phone number that help protect against fraud.
- Certify that a consumer has sufficient funds to initiate a debit transaction, including recurring debits.
- Easier for consumers, who don't need to remember cumbersome routing and account numbers, or log in to their bank website to verify microdeposits.
- More secure than other methods because routing and account information do not directly exchange hands.

Many participants in the ACH ecosystem find that the benefits outlined above far outweigh the small per-transaction cost of utilizing such services. Returns materialize on the bottom line—as well as in the form of less hassle and inconvenience from pesky ACH returns.

Developed as an alternative to checks, ACH payment is now becoming one of the default options for paying and getting paid online. ACH payments are commonly used to make online bill payments, mortgages & loans, and to pay employees via payroll direct deposit.

BENEFITS OF ACH PAYMENTS

ACH payment is ideal for recurring billing

Recurring billing depends on connections to the user's bank account, and those details seldom change. That enables employers to send out payroll payments automatically, without devoting manpower to manually writing and mailing checks. Consumers can also set up automatic billing to pay monthly bills via ACH, which leads to fewer missed payments overall.

Faster and more convenient

ACH payments settle much faster than checks, which can take a day to clear, but which also require time and effort to write, mail, and deposit. In the past, an ACH payment could take up to three days to process, but today there are ways to streamline the.

Plaid helps onboard people for ACH payment by eliminating microdeposits, which can shorten your onboarding process by several days.

Low cost

Many ACH processors charge a flat fee per transaction instead of a percentage fee often charged by card networks.

72%

72 percent of employees also say that being paid by ACH deposit helps them control their finances

Cheaper than checks

According to a 2014 study, writing and mailing checks costs businesses between $4 and $20 per check—amounting to $54 billion annually. An ACH deposit is free. According to another survey, 72 percent of employees also say that being paid by ACH deposit helps them control their finances.

Reduce errors and fraud risk

ACH payments require account authorization before they can be processed. This is done to ensure that a bank account exists and that it belongs to the person claiming it. Verifying accounts' existence decreases the number of returned and fraudulent transactions.

Keep consumer data safe

Some ACH payments—such as those facilitated by use of Plaid's Auth, Balance or Identity API's—don't require providing any sensitive account information such as routing and account numbers or credit card numbers. This minimizes the risk of a data breach.

FINTECH IS GIVING SMALL COMPANIES ACH ACCESS

Accepting ACH payments used to be a difficult process, especially for small businesses who had no connection to an ODFI (not all banks are ODFIs). However, third-party apps have made this process much simpler by facilitating support for ACH payments.

Companies like Stripe connect merchants and businesses with ODFIs, and apps like Venmo and Cash App allow individuals to send ACH payments to each other and pay for goods and services hassle-free. Plaid also facilitates ACH payments by allowing users to connect to other business apps securely and easily.

82%

Today, 82 percent of American employees get paid via an Automated Clearing House (ACH) deposit

ACH DEPOSITS

The number of employers adopting ACH deposits is growing fast.

Five years ago, 74 percent of people got paid this way. Today the number is eighty-two percent. With ACH deposits, employees don't have to take the extra step of depositing a physical check, and employers don't have to devote time and resources to writing, printing, and mailing checks either.

> *An ACH deposit is also called an ACH credit transaction, in which funds get "pushed" from the transaction originator's bank account to the recipient's.*

For an employee to get paid on the ACH network, the employer (originator) sends an electronic ACH file to the ODFI, or the employer's bank. This file contains information pertinent to the ACH deposit, such as the recipient's name, the relevant routing and account numbers, and the amount of the transaction.

From here, the payment follows the processes outlined above that include batched clearing, transferring the files to the RDFI (the employee's bank), and depositing the right amount of money into the employee's bank account.

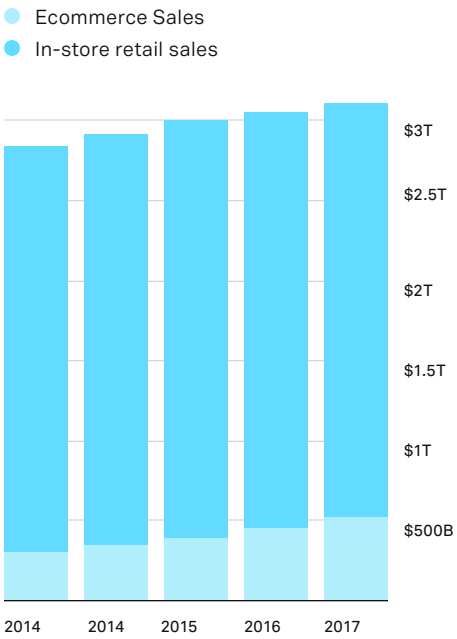
The entire process for making an ACH deposit is conducted electronically. ACH deposits usually take between one and four business days to settle and appear in the recipient's account.

ACH Transfers (debit & credits)

27 billion

NACHA reported 27 billion ACH transactions for 2018

U.S. RETAIL TRENDS



Source: U.S. Commerce Department

WHAT IS AN ACH TRANSFER?

An ACH transfer is an electronic movement of money between banks that use the ACH network. **There are two kinds of ACH transfers: debit transactions and credit transactions**. While both are free to use (except for third-party processor fees), the difference comes in whose bank initiates the transaction: the originator's or the recipient's.

ACH DEBIT

A debit ACH transfer occurs when money gets subtracted from a user's bank account.

The originator of a transaction authorizes the recipient to "pull" funds from his or her account. Say a customer wants to pay an electric bill via ACH debit. The customer is the originator of the transaction, and his bank is the ODFI. The customer authorizes his bank, the ODFI, to send money from his account to the recipient's upon the recipient's, (in this case, the electric company's) request.

This kind of ACH transfer can happen when a customer sets up a recurring loan payment, and the lender debits the predetermined amount from the customer's account every month. Another example is when a merchant charges a customer through an app like Venmo, and the money is pulled from the customer's bank account. Debit ACH transactions require a customer to provide his or her bank account information so that the funds can be pulled from their account.

- According to a 2013 study conducted by NACHA, direct payment was the leading consumer bill payment method, with nearly 50 percent of all bills paid this way.
- Billers also noted that receiving payments via ACH debit was their number-one preferred method of getting paid because it improves operating efficiencies and saves money. In the case of recurring billing via ACH debit, it also ensures that bills get paid on time.

ACH CREDIT

A credit ACH transfer occurs when money is deposited into a user's bank account.

For example, a credit ACH transfer happens when an employee receives a regular paycheck via direct deposit. The paycheck is deposited into their bank account using an ACH transfer.

- ACH credit comprises more than 40 percent of all ACH transactions made in the United States, and that number is increasing as more and more businesses pay their employees through direct deposit.
- 82 percent of U.S. employees are paid via direct deposit—and therefore ACH credit—which is up from 74 percent in 2011.
- According to a survey by NACHA, employees prefer being paid via ACH credit because it grants them faster access to funds than a check, doesn't cost anything, and is convenient.

ACH transfers can be peer-to-peer, me-to-me, business-to-business, business-to-consumer. or consumer-to-business.

ACH credit transactions usually settle within one to two business days. The delay is generally due to the batching process discussed above, which does not transfer the request for the transaction immediately. However, NACHA is striving toward Same-Day ACH, which enables financial institutions to process and settle ACH credit transactions on the same day they are initiated.

HOW MUCH DOES AN ACH TRANSFER COST?

ACH transfers are typically free for transactions between peers or for businesses.

For merchants or small businesses relying on third-party processors to access the ACH network, there may be a small cost. Third-party ACH processors may charge a small fee for the ACH transfer, which is typically either a flat rate less than $1 or less than 1 percent of the transaction. Some banks may also charge individuals a small fee to make a credit ACH transfer to an external account at a different bank.

Plaid is a technology platform and data network that enables applications to connect with users' financial accounts. We focus on lowering the barriers to entry in financial services by making it easier and safer to use financial data.

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