FedNow Unintended Gaps and Risks

August 4, 2024

In 2023, the Federal Reserve implemented FedNow, a new 24x7x365 instant payment system. FedNow is a credit push payment that is instant and irrevocable.

The Federal Reserve's hours of operation creates a hybrid system that is partially instantaneous and partially multi-day. This hybrid system results in gaps between the end-of-day accounting at the Federal Reserve and end-of-day accounting on the books of banks that use FedNow. The unintended consequence of this hybrid system is that it creates risks for banks but not for the Federal Reserve. Other existing Federal Reserve electronic payment services, Fedwire and ACH, do not create similar end-of-day accounting gaps.

Instant, credit push payments require the sender to know or have access to the beneficiary's bank account information. Users of Fedwire address this need by providing the beneficiary's bank account information to their bank when initiating a Fedwire. This approach works for low volume Fedwire but will not for FedNow. FedNow is designed to send and receive payments between every consumer and business in the U.S. With full implementation and tens of millions of users, the logical solution is to house in and provide this banking information from one or more databases, known as routing directories.

When payments are initiated instantaneously 24x7x365, access to and updates to routing directories must also be instantaneous and must be performed in sync with payment initiation. FedNow is near instantaneous but there are small timing gaps between each of the several steps in the initiation, routing, and delivery of FedNow payments.

Following are descriptions of the gaps in settlement and directory maintenance that are needed for FedNow to achieve optimum performance while minimizing the creation of new risks.

The Settlement Gap

End-of-day for FedNow is 7:00 pm ET. However, most banks do not end their processing day until several hours later, some after midnight. FedNow payments processed between the Federal Reserve's end-of-day and the bank's end-of-day are booked on two different processing days. For example, FedNow closes at 7:00 pm ET and then immediately reopens for payments dated the next day. A West Coast bank that continues to process payments after 7:00 pm ET (4:00 pm PT) would book those payments occurring during the end-of-day gap a day earlier than the Federal Reserve. This gap of eight or more hours for West Coast banks is about one third of the banks' processing day.

This gap was recognized by the Federal Reserve in its *Service Details on Federal Reserve Actions To Support Interbank Settlement of Instant Payments* published on August 11, 2020. That notice said,

"The Board also proposed that, for the purpose of the Reserve Banks' accounting processes, transactions processed after the FedNow Service's close but before midnight eastern time each calendar day would be recorded on Federal Reserve accounting records as transactions occurring on the next calendar day. For example, a FedNow Service transaction that occurs after the closing time and before midnight eastern time on a Saturday would be recorded as occurring on Sunday."

"…Additionally, the Board expects that participating banks will record FedNow Service transactions in their customer accounts according to their own business day and accounting conventions (while still providing immediate access to funds received through the FedNow Service). The Board recognizes that a bank's definition of a business day may also affect its conventions for reporting and recording transactions that occur on weekends and holidays…"[1]

The impact of this is further exacerbated for payments initiated during the gap at the end of a month, end of a quarter, end of a fiscal year, and the end of a calendar year. For example, the banks would book payments made on December 31st in one year and the Federal Reserve would book them on January 1st, the next year. The impact of this difference could be significant and especially for businesses.
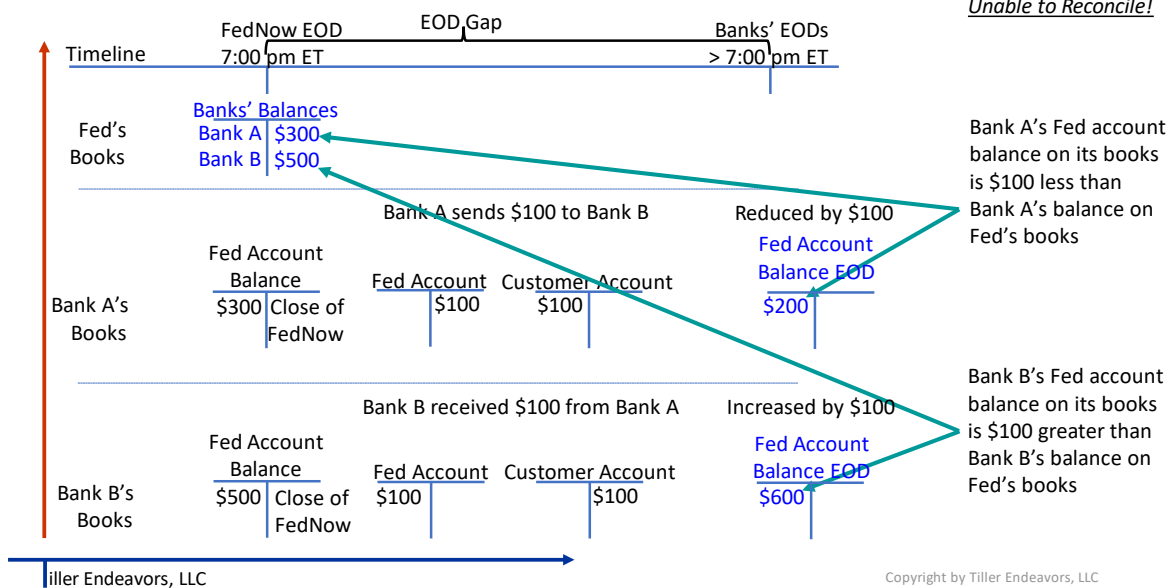
There is a fundamental difference in the expectations and accounting required for Fedwire and ACH payments than for FedNow. With Fedwire and ACH payments, all parties expect the payments after the respective closings to be processed the next day. End-users of FedNow expect those payments to be completed and finalized on the calendar day when they are initiated, not the next day, the next month, or the next year. This basic difference requires banks to make new accounting entries for FedNow payments.

This end-of-day gap creates a reconciliation issue between the banks' books and the books of the Federal Reserve. As indicated above, transactions occurring during the end-of-day gap will be reflected on two different days; today on the banks' books and tomorrow on the Federal Reserve's books. This creates an out-of-balance between the two entities. To reconcile the out-of-balance, the banks will need to make accounting entries to recognize the difference.

The following graphic demonstrates an accounting gap scenario.

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[1] *Service Details on Federal Reserve Actions To Support Interbank Settlement of Instant Payments* published on August 11, 2020, III.C.4 Business Day.

The Scenario

Timeline — FedNow EOD 7:00 pm ET — EOD Gap — Banks' EODs > 7:00 pm ET

Fed's Books

Banks' Balances
Bank A $300
Bank B $500

Bank A's Fed account balance on its books is $100 less than Bank A's balance on Fed's books

Bank A's Books

Bank A sends $100 to Bank B — Reduced by $100

Fed Account Balance $300 Close of FedNow
Fed Account $100   Customer Account $100
Fed Account Balance EOD $200

Bank B's Books

Bank B received $100 from Bank A — Increased by $100

Fed Account Balance $500 Close of FedNow
Fed Account $100   Customer Account $100
Fed Account Balance EOD $600

Bank B's Fed account balance on its books is $100 greater than Bank B's balance on Fed's books

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Two Banks, A and B, have balances on the Federal Reserve's books of $300 and $500 respectively at the close of FedNow. On a Monday following the close of FedNow and before the end-of-day for Banks A and B, Bank A sends a FedNow payment of $100 to a customer of Bank B. Banks A and B reflect the payments on their books on Monday by showing a reduction on Bank A's books and an increase on Bank B's books. Because this payment will not be reflected on the Federal Reserve's books until Tuesday, a day later, both banks are now out of balance with their accounts at the Federal Reserve and must make new entries to account for the differences.
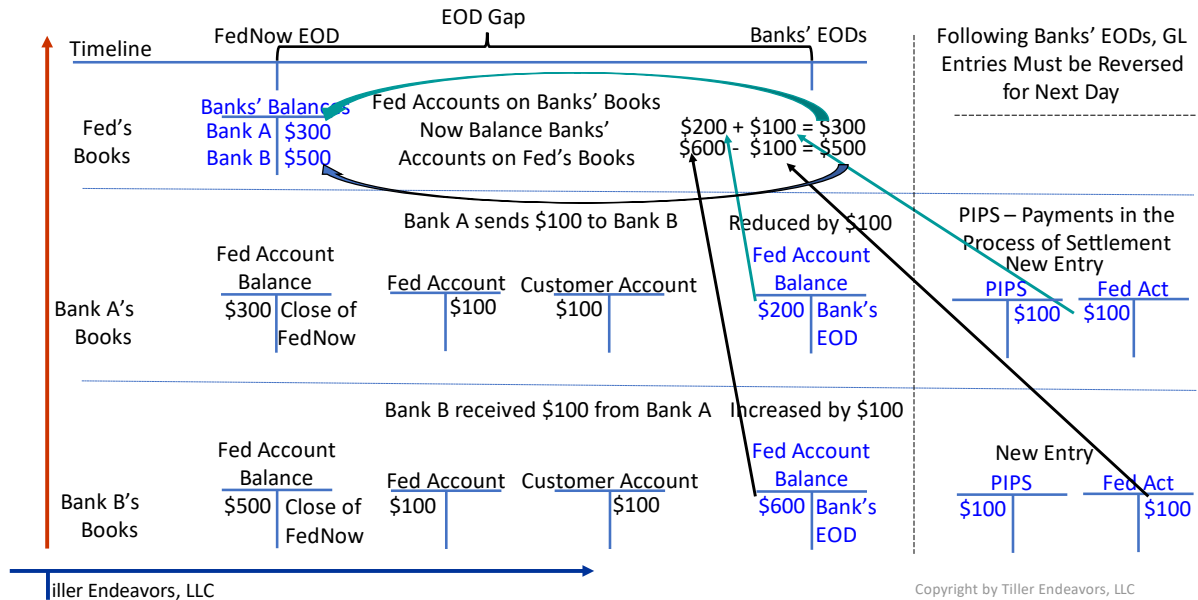
To reconcile the banks' balances with the Federal Reserve's books, both banks will need to make new entries to account for the difference of one day for the $100 payment. For lack of a better term, let's call the $100 transaction a "payment in the process of settlement" (PIPS). A new general ledger asset account, Payments in the Process of Settlement is needed.

The reconciliation entry for Bank A on its books is a debit to its new PIPS (asset) account and a credit to the Federal Reserve (asset) account. The next day this entry will need to be reversed to reflect the decremented balance on the banks account at the Federal Reserve. This is similar to the accounting that banks have been performing for decades for checks in the process of collection (CIPC). Accounting for CIPC recognizes that checks sent by the depositary bank to the paying bank will, in some cases, be processed on different days.

Likewise, Bank B also needs to make a similar reconciling entry. On its books, the entry will be a credit (decrement) to its new PIPS general ledger (asset) account and a debit to increase the balance in the Federal Reserve (asset) account. The next day, the entry will need to be reversed.

The following graphic shows the reconciliation process and the reconciliation entries.

Reconciliation

Timeline

EOD Gap

FedNow EOD   Banks' EODs   Following Banks' EODs, GL Entries Must be Reversed for Next Day

Fed's Books

Banks' Balances
Bank A | $300
Bank B | $500

Fed Accounts on Banks' Books Now Balance Banks' Accounts on Fed's Books

$200 + $100 = $300
$600 - $100 = $500

Bank A's Books

Bank A sends $100 to Bank B   Reduced by $100   PIPS – Payments in the Process of Settlement New Entry

Fed Account Balance
$300 | Close of FedNow

Fed Account
$100

Customer Account
$100

Fed Account Balance
$200 | Bank's EOD

PIPS
$100

Fed Act
$100

Bank B's Books

Bank B received $100 from Bank A   Increased by $100   New Entry

Fed Account Balance
$500 | Close of FedNow

Fed Account
$100

Customer Account
$100

Fed Account Balance
$600 | Bank's EOD

PIPS
$100

Fed Act
$100

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     Because FedNow payments during the settlement gap occur on different days, they are floated transactions. This unintended anomaly does not exist for Fedwire or ACH transactions so the Federal Reserve and its FedNow users might be unaware that it is unintentionally creating a new set of floated electronic payments and therefore the necessity for new, accounting entries.

     As floated transactions, payments processed during the end-of-day gap must be risk weighted for bank capital calculations. During the early implementation of FedNow while the aggregate payment amounts are still relatively small, the impact will likely be de minimis but with the anticipated success of FedNow, the amount will grow. As the volume and value of FedNow payments grows and replaces other payment types, the amount of FedNow instant payments could be as large as all of the other payments combined[2]. Therefore the future impact on the amount of risk-weighted FedNow payments could be significant and will have an impact on the bank's risk-weighted assets which will impact its capital requirements.

     When payments are floated, it is assumed that there is some risk as the result of differences in the dates of payment and settlement. While the Federal Reserve assumes that credit push payments are risk free, or near risk free, the settlement gap creates an unanticipated risk for banks.

     Consider bank failures that occur during the settlement gap or at the bank's end-of-day. How will the FDIC determine who owns the funds for payments occurring during the gap? The recipient bank of a FedNow payment will anticipate that it has ownership of the funds but the Federal Reserve will show on its books that funds remain in the sending bank's account. If the

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[2] Today there is a dollar limit on the amount of FedNow payments which protects Fedwire payments. In the future should the current limits be increased a larger volume of high dollar payments could be made as FedNow payments. Even without Fedwire payments, the total value of check and ACH payment totals more than $120 trillion per year.

sending bank retains the funds, then what funds are used by the receiving bank to pay its customers? This creates a new uncertainty as to the actual finality of FedNow payments.

When banks offer instant payments to their customers, they incur the risks associated with the gaps between instant payments and multi-day, interbank settlement. While this may be a necessary transitional risk, it is important to minimize the duration of the transition.

The Directory Maintenance Gap

One of the benefits of credit push payments is that the money is withdrawn from the sender's account prior to being sent to the beneficiary. This is accomplished by the sender or the sender's bank having access to the beneficiary's bank and account information. In an environment of instant payments, keeping the routing directories current is critical, otherwise payments can be misdirected. Even minimal gaps, between the time when a payment is initiated and received, allow information contained within the routing directory to be modified resulting in the payment being delivered to an unintended recipient. FedNow as a credit push payment includes this risk and therefore needs to be addressed before FedNow gains wide acceptance and creates a significant, unanticipated risk for banks and payments users.

The following graphics are two examples of this risk. The first shows the potential timing of events when one central directory is used. The second shows that potential when two directories are used. With full implementation, it is possible, and probably likely, multiple directories will be needed to deliver the payments to every bank and every bank customers.

The following is a summary of the steps to send and receive a FedNow payment using a single directory:

Real-Time Payment & Directory Maintenance
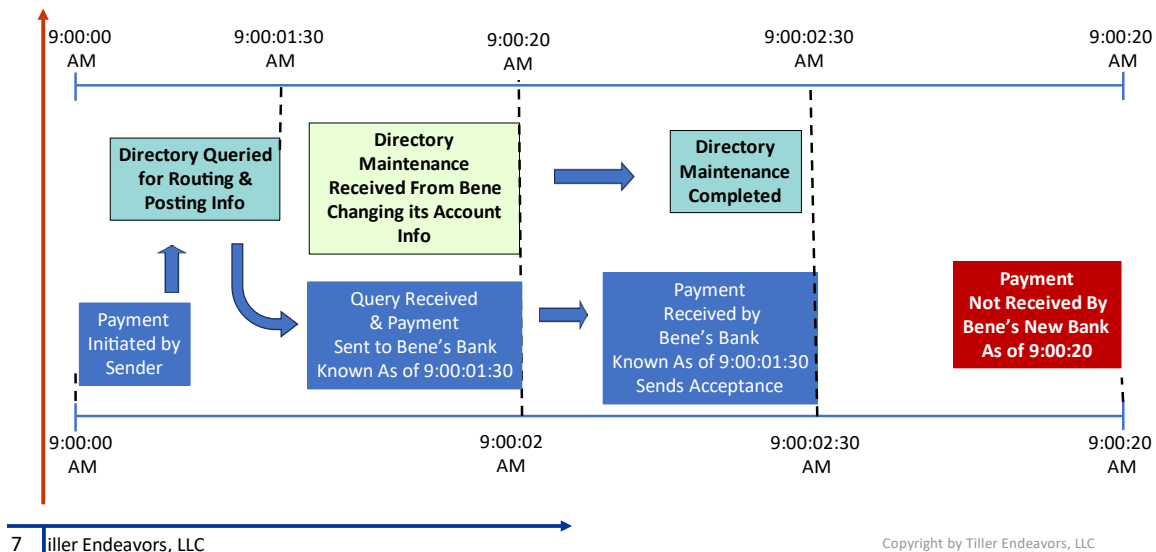
- At 9:00:00:00, a payment is initiated.
- At 9:00:01:30, the directory is queried for routing and posting information.
- At 9:00:02:00, the response is received from the directory and the payment is sent to the beneficiary based on information as of 9:00:01:30.
- At 9:00:02:00, the directory receives instructions from the beneficiary to change its bank account information. The beneficiary is unaware of when, or if, the sender will initiate a payment.
- At 9:00:02:30, the irrevocable payment is received and accepted by the beneficiary's previous bank relationship.
- At 9:00:02:30, directory maintenance is completed. No response from the sender is requested after 9:00:02:30.
- At 9:00:20, the Payment Timeout Clock expires and the payment fails to arrive at the intended beneficiary's new/revised bank account. The sender is unaware of the misdirected payment and the expiration of the Payment Timeout Clock.

If the beneficiary is simply changing accounts within the same institution with the same account ownership, this may have an easy recovery with no loss. If, however, the beneficiary is in the process of severing ties with its previous bank or with a previous joint account owner and the funds are irrevocable, the intended beneficiary may be out the funds. Normally, the new account would be opened prior to closing the old account so both accounts could be active simultaneously. With no error recovery process in place for irrevocable payments, the beneficiary's only option may be litigation.

The addition of two or more directories further increases the opportunity for misdirection of payments. In the following example, there are two directories; Directory 1 has a primary relationship with the beneficiary (receiver) and Directory 2 has a primary relationship with the paying party (sender).

The following is a summary of the steps to send and receive a FedNow payment using two directories:

Timing of Payment vs Two Directories
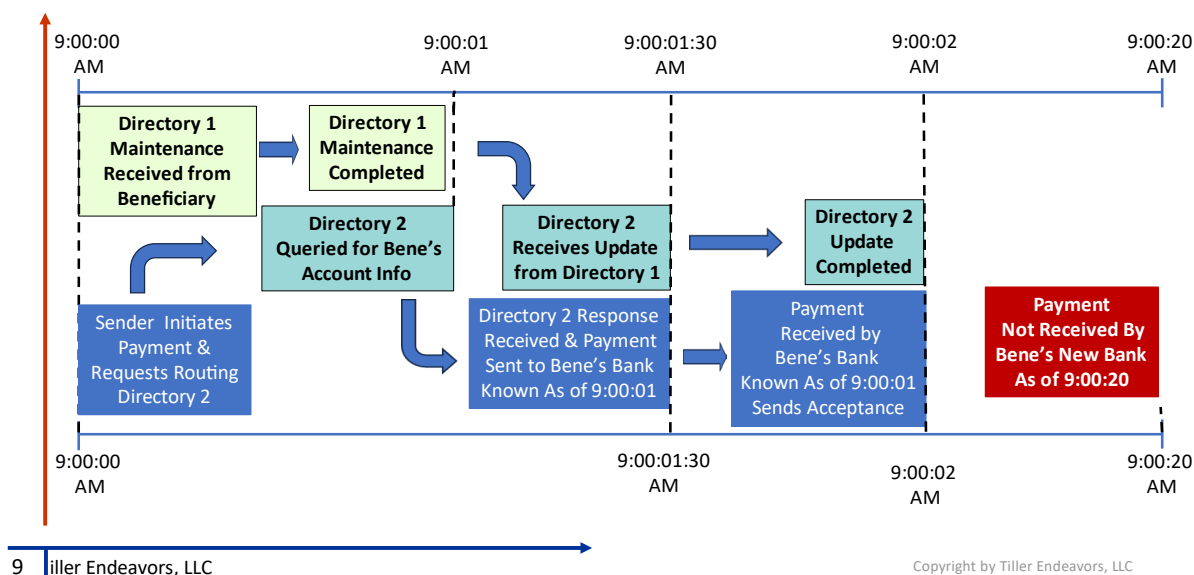
- At 9:00:00:00, Directory 1 receives a maintenance instruction from the beneficiary.
- At 9:00:00:00, the sender initiates a payment.
- At 9:00:01:00, Directory 2 is queried by the sender for routing and posting information.
- At 9:00:01:00, Directory 1 completes the maintenance requested by the beneficiary.
- At 9:00:01:30, the sender or its bank receives the routing information from Directory 2 and sends the payment to the beneficiary based on information as of 9:00:01.
- At 9:00:01:30, Directory 2 receives the updated information from Directory 1.
- At 9:00:02:00, the irrevocable payment is received and accepted by the beneficiary's previous bank relationship.
- At 9:00:02:00, Directory 2 completes the update from Directory 1. No response from the sender is requested after 9:00:02:30.
- At 9:00:20, the Payment Timeout Clock expires and the payment fails to arrive at the beneficiary's new/revised bank account. The sender is unaware of the misdirected payment and the expired Payment Timeout Clock.

These multiple timing gaps, although small, open the opportunity for changes in the routing directory to occur in parallel with the initiation, processing, and clearance of FedNow payments. This dynamic, simultaneous payment processing and directory maintenance creates the risk of misdirected payments. In an environment where payments are instantaneous and irrevocable, it is critical that each step be carefully choreographed with all other steps to avoid this risk. The absence of an instantaneous maintenance of routing directories creates new risks for banks and their customers. Truly "instant" payments, therefore, may not actually be possible

without the creation of risks. The Federal Reserve may need to define a throttle, a very fast throttle, to pace the events from start to finish. Or it may need to create a robust error resolution mechanism to right the wrongs created by misdirected, irrevocable payments.

Alternatively, FedNow could avoid these directory gap issues by not using routing directories. The sender could simply ask the intended beneficiary for its bank account information each time prior to initiating a payment thus moving the responsibility to the two bank customers. This creates some inefficiencies and additionally extends to FedNow one of the existing problems with check payments. When checks are issued, the payer's bank information is provided to the beneficiary on the face of the check. Credit push payments are intended, in part, to avoid this sharing of bank information. The alternative of not using a directory simply replaces the sending party's information with the beneficiary's information. One of the reasons for directories is so neither party need know the banking information of the other.

Additionally, a system of ubiquitous retail payments in which every party can send and receive to and from every other party is efficient only if the routing and posting information is easily obtained. By using the same method of obtaining beneficiary information for FedNow that is used for Fedwire, the adoption of FedNow can be expected to be measurably slowed, in part, because there is a healthy reluctance to provide one's bank information to other parties.

Conclusion

FedNow is a logical enhancement to the payment services of the Federal Reserve. However, its implementation creates subtle, unintended gaps and risks of which the users and providers should be aware and the providers should take steps to address. This document is intended as an aide to understanding those gaps and risks.