

Cross-network intraday repo agreement settlement

Broadridge participated as a project contributor in the Regulated Settlement Network Proof-of-Concept. The following is an excerpt from the *RSN PoC Business Report*, published in December 2024.

Introduction

The Regulated Settlement Network (RSN) proof of concept (PoC) is an industry initiative built upon the foundation established within the Regulated Liability Network (RLN) US PoC conducted in 2023 by a subset of US financial institutions. The purpose of the RSN PoC was to explore how tokenized securities and tokenized central bank and commercial bank deposits could be deployed within a financial market infrastructure (FMI) leveraging shared ledger technology to advance settlement capabilities in comparison to existing infrastructures. The subsequent RSN PoC set out to:

- **Support a multi-asset network.** The RSN included various asset types, including tokenized central bank deposits, commercial bank deposits, tokenized securities, bonds, and other regulated securities within a single shared ledger.
- **Facilitate enhanced interoperability.** The RSN aimed to promote interoperability across different tokenized financial networks with the goal of enabling seamless and efficient processing and settlement capabilities. Interoperability was a key element of the PoC, enabling the RSN to connect with other regulated third-party networks, ensuring that cross-network transactions can achieve legal finality of settlement. This capability may enhance the efficiency of cross-network transactions and also support the settlement of securities, bonds, and other regulated assets across diverse networks in tokenized central bank deposits.
- **Ensure 24/7 operation.** Leveraging the benefits of shared ledger technology, the RSN could be a candidate to support the global economy, which requires continuous availability, allowing economic actors to contract and settle obligations precisely and at any time.

The RSN working group tested two scenarios to explore potential settlement improvements in comparison to existing processes. The two scenarios explored were:

1. **Multi-asset delivery versus payment (DvP) settlement**
2. **Cross-network settlement**

Between the two scenarios, five individual use cases were analyzed:

- **Client-to-client investment grade (IG) bond DvP settlement:** Simultaneous settlement for IG bond DvP settlement within the RSN FMI. This use case explored whether the RSN could serve as a simultaneous settlement infrastructure in which transfers in ownership of IG bonds were settled through theoretical tokenized central bank deposits.
- **Centrally cleared dealer-to-dealer treasury DvP settlement:** Deferred settlement for centrally cleared treasury DvP settlements within the RSN FMI. This use case explored whether the RSN could provide precise, dynamic settlement capabilities and preserve the positive benefits provided through transaction netting while also complying with the upcoming SEC Treasury Clearing mandate.
- **Cross-network DvP settlement:** Multi-asset settlement initiated off the RSN through an interoperability solution with an external network. The RSN aimed to provide coordinated settlement finality in tokenized central bank deposits and to coordinate off-RSN multi-asset settlement.



- **Cross-network correspondent bank settlement:** Interbank settlement for transactions initiated off RSN member banks leveraging RSN settlement agent banks to achieve coordinated settlement in tokenized central bank deposits for commercial bank transactions initiated off the RSN.
- **Cross-network intraday repurchase (repo) agreement settlement:** Intraday repo DvP transaction initiated off the RSN with both legs of the repo transaction being settled simultaneously on the RSN.

Cross-network intraday repo agreement settlement use case

The final use case that the RSN working group explored was the ability to connect to a third-party platform to initiate intraday repurchase agreements in which both legs of the transaction are settled on the RSN. Expanding on the non-centrally cleared investment-grade bond and centrally cleared DvP use cases, the intraday repo use case was performed in collaboration with Broadridge's Distributed Ledger Repo (DLR) product. The use case intended to demonstrate that the RSN could facilitate intraday repo transactions across two separate networks with enhanced transparency, real-time visibility, and automated synchronized settlement of both cash and securities for both legs of a repo transaction that are maintained on the RSN, ultimately providing an intraday funding solution to allow RSN member banks to better optimize their cash and collateral on an intraday basis.

This use case highlights how integrating the RSN with other platforms, such as the Broadridge DLR, through an interoperability solution such as Swift's interlinking prototype, could synchronize transaction execution and settlement, expanding transaction optionality and enhancing market liquidity for Broadridge DLR member banks that are also RSN member banks. Furthermore, the interoperability of the Broadridge DLR use case is a key feature, allowing seamless cross-network transactions and continuous access to funding and liquidity management on a 24/7 basis. While not limited solely to Broadridge DLR, by enabling interoperability with other tokenized platforms, the RSN ensured that financial institutions can operate within a versatile and interconnected ecosystem, providing access to liquidity to allow banks to better optimize their collateral and be able to settle obligations on an as-needed basis.

Today, there is a small amount of activity in intraday markets given the limited industry options for this type of activity. This is mainly due to the following challenges:

Technical limitations: Existing legacy technology infrastructures do not have the ability to book and settle intraday repo transactions outside of the existing acceptable settlement times.

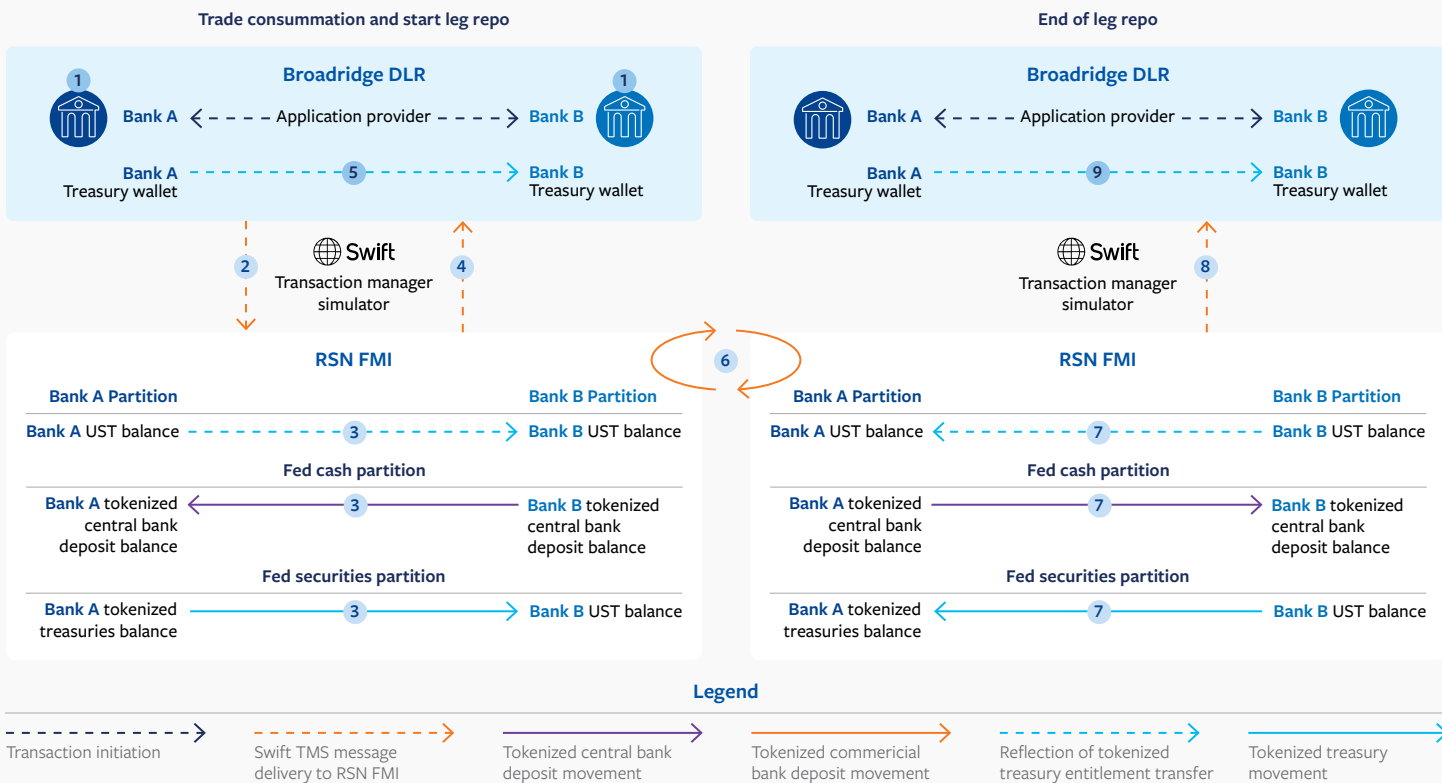
Limited network interoperability: While some solutions exist, transaction activity is solely for members of existing solutions, forcing such networks to operate in a siloed capacity and not be industrywide.

Increased operational complexity: Deployment of additional solutions can be operationally complex when transitioning between legacy infrastructures to new technologies.

Limited intraday participation: Given the aforementioned challenges, activity in the intraday market has not realized broad industry participation, limiting the activity and liquidity within the industry.

The RSN working group set out to depict how the RSN, serving as a common settlement infrastructure where tokenized assets, tokenized central bank deposits, and tokenized commercial bank deposits reside, could alleviate the previously stated challenges.

Cross-network intraday repurchase (repo) agreement settlement high-level design



The cross-network intraday repurchase (repo) agreement settlement—Broadridge DLR intraday repo use case was built on several assumptions:

- Broadridge DLR banks are also RSN member banks.
- Broadridge DLR has the legal authority to submit a transaction to RSN on behalf of its member banks.
- The start leg of the repo occurred at 10:00 a.m. ET, and the end leg took place at 12:00 p.m. ET, providing a 2-hour term for this transaction.
- Tokenized treasuries maintained within the Fed Securities partition preexist in RSN member accounts within the Fed Securities partition.

The process flow for a repo transaction initiated between two Broadridge DLR banks where both legs of the transaction are settled on the RSN can be reduced to six key steps:

1. Bank A and Bank B enter into a repo transaction on DLR.
2. Once the trade is executed and the necessary AML and KYC checks take place, Broadridge DLR submits the transaction details to the Swift interlinking prototype, which is then routed to the RSN for settlement.
3. Once Bank A, Bank B, Fed Cash, and Fed Securities partitions each approve the transaction, Bank A's tokenized security account is debited and Bank B's tokenized security account is credited on the Fed Securities partition. Bank A's tokenized

central bank deposit account is credited and Bank B's tokenized central bank deposit account is debited on the Fed Cash partition. The reflection of cash and security ownership is mirrored on the bank partitions for real time visibility by the banks.

4. Once settlement occurs, the Swift interlinking prototype routes the successful transaction message back to Broadridge DLR.
5. Once this message is received, the accounts on Broadridge DLR's platform are updated reflecting the transaction that took place on RSN.
6. At 12:00 p.m. ET on the same trade date, the end leg of the repo automatically unwinds, leading to the following steps:
 - a. Bank A's tokenized security account is credited and Bank B's tokenized security account is debited on the Fed Securities partition. Bank A's tokenized central bank deposit account is debited and Bank B's tokenized central bank deposit account is credited plus the agreed-upon interest rate. The reflection of cash and security ownership is mirrored on the bank partitions.
 - b. Once settlement occurs, the Swift interlinking prototype routes the successful transaction message back to Broadridge DLR.
 - c. Once this message is received, the accounts on Broadridge DLR's platform are able to be updated reflecting the transaction that took place on the RSN.

“Precise funding using intraday repo on a network like RSN holds the potential to improve liquidity management and reduce funding costs across the industry.”

— Arushi Sood Joshi,
Head of Distributed Ledger Technology and
Digital Assets Center of Excellence, Wells Fargo



Key findings and expected benefits

The RSN was able to successfully connect with Broadridge DLR through the use of Swift’s interlinking prototype to settle both legs of repo transactions initiated through Broadridge DLR. Considering the IG bond DvP use case was settled simultaneously, and the centrally cleared treasury DvP use case was settled various times throughout the trading day, financial institutions would need access to intraday funding solutions to be able to offset trade obligations on the same day, instead of financing transactions overnight and on trade date in the current T+1 settlement market. This use case proved critical to allowing firms to better optimize cash and collateral to settle same-day trade obligations. Specific key findings for this use case include:

Enhanced liquidity management: As the RSN provides 24/7 access to liquidity and simultaneous settlement capabilities for tokenized cash and assets on the RSN, financial institutions can manage their liquidity needs more effectively throughout the trading day to settle obligations on behalf of the institution and clients. The ability to perform intraday repo transactions provided an as-needed funding option, helping institutions meet short-term obligations and better optimize liquidity and collateral inventory.

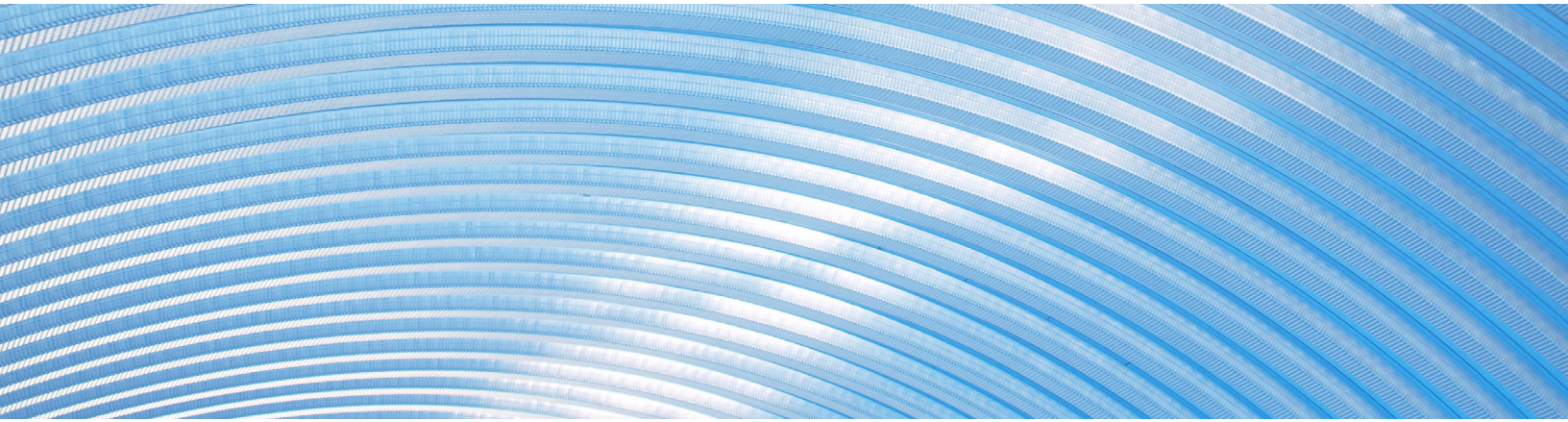
Reduced sizing of liquidity buffer: The ability to reduce liquidity buffers (driven by the Basel III LCR requirement), which are a function of intraday liquidity spikes and cash flows, is an intraday repo solution that allows institutions to manage their liquidity needs and intraday spikes more effectively.

Reduced nature of manual operations: Since the specific end time of the repo was included in the initial transaction message, the end leg of the repo is able to automatically take place, reducing the need for manual intervention for unwinding the end leg of a repo transaction.

Increased transaction optionality: By connecting the RSN and Broadridge DLR, the system provides additional transaction options to RSN members, enabling them to engage in a wider range of executable transactions. The ability to set dynamic start and end times for repo transactions throughout the trading day offers greater flexibility and customization for market participants. This flexibility can help institutions better manage their funding and investment strategies.

Collateral optimization: As the RSN will reflect the securities and cash held in custody within the underlying partitions as part of the repo transaction, increased transparency and real-time visibility into the status of securities on the network was achieved.

Extensibility to other third-party platforms: By having a common settlement infrastructure where the RSN contains various forms of securities and cash with multiple types of applications linking with the RSN allows RSN member banks to seamlessly interact with other applications. This reduces fragmented liquidity and security inventory while providing greater network interoperability capabilities.



Use case conclusion

The completion of the cross-network intraday repurchase (repo) agreement settlement use case proved to be significant for the RSN PoC and how the future of how cross-network multi-asset and intraday repo transactions can be achieved. Offering intraday funding solutions in a shared ledger environment consisting of tokenized securities, tokenized central bank deposits, and tokenized commercial bank deposits could reduce existing market fragmentation and allow for financial institutions to offset trading

obligations sooner, permitting greater optimization of cash and collateral while reducing settlement and counterparty risk. It is important to note that while this use case was performed in collaboration with Broadridge DLR, the wider array of benefits could be extended to other tokenized third-party platforms, allowing for seamless crossnetwork settlement capabilities across the industry.

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