

## THE PLUMBING PROBLEM BEHIND TOKENIZED FINANCE: THE MONDAY MORNING THAT'S COMING

Sometime in the next twelve months, a portfolio manager at one of your clients will want to post tokenized treasuries as margin alongside traditional government bonds. The position of economics, credit risk, and legal claim on the underlying sovereign debt is identical. And your systems will treat them as though they arrived from different planets — because, operationally, they did.

One settles T+1 through DTCC with SWIFT confirmations and CSD custody. The other settles atomically on a distributed ledger with API-native messaging and wallet-based custody. Your collateral management platform needs to value both, margin both, and move both — ideally before your counterparty's risk engine flags the mismatch and starts making phone calls.

The convergence is broader than that one margin call. Regulatory catalysts are pulling exchanges, clearing firms, sell-side intermediaries, buy-side investors, and even retail platforms toward interoperability between the two worlds. Each participant type faces a different flavor of the same problem: traditional and tokenized assets follow fundamentally different workflows, and when they converge, the result is a technology infrastructure rethink for any firm transacting or processing both.

Broadridge's Distributed Ledger Repo platform processed an average of \$384 billion per day in December 2025, with monthly volumes reaching \$9 trillion. The world's largest institutional platform for tokenized real asset settlement left the pilot phase behind several hundred billion dollars ago. BlackRock's BUIDL fund peaked at \$2.9 billion and is already accepted as collateral on multiple digital asset exchanges. Total tokenized Treasuries crossed \$10 billion in January 2026. These are examples of market developments that showcase how the financial services industry is adopting tokenization capabilities.

Collateral management is the starting point since the economics are the most compelling, and the regulatory framework now explicitly permits it. But the infrastructure challenge that tokenization surfaces extends across settlement, connectivity, custody, and reporting — and ultimately across every participant in the ecosystem.

## REGULATION HAS SHIFTED FROM AMBIGUITY TO CLARITY

For years, the absence of clear rules kept institutions cautious, leading to pure experimentation riddled with uncertainty of benefits. Recent regulatory developments in the US and Europe have removed this regulatory ambiguity, allowing participants to invest in the tokenization technology.

The CFTC issued Letters 25-39 and 25-40 on December 8, 2025, explicitly sanctioning tokenized Treasuries, corporate bonds, money market fund shares, and equity securities as collateral for futures and swaps, while simultaneously launching a pilot for bitcoin, ether, and stablecoins as margin. That is a framework that expects participants to build to it. The GENIUS Act, signed into law on July 18, 2025, established a federal framework for stablecoins. The CLARITY Act passed the House and entered Senate markup in April 2026, classifying digital assets into five categories. And the SEC and CFTC Joint Interpretive Release from March 17, 2026, stated it plainly: a security remains a security regardless of whether it is issued off-chain or on-chain.

That principle was extended to its operational conclusion in a white paper published by DTCC, Clearstream, and Euroclear on March 4, 2026. Their formulation was precise: interoperability means the ability to exchange assets across ledgers — DLT and traditional — while preserving the asset's integrity, ownership rights, and lifecycle. Same asset, same rights, same outcome. When the three organizations that collectively process virtually all securities settlement in the developed world commit to outcome equivalence across traditional and DLT rails, it signals a commitment to investing in a re-imagined design for the clearing and settlement process.

The regulatory shift is multi-jurisdictional — MiCA is fully applicable across Europe, with transitional provisions running through July 2026 — and the bipartisan consensus at the House Financial Services Committee hearing on March 25, 2026, was that convergence is a matter of when, not whether. When regulation shifts from "you may" to "you must be capable of," the timeline for infrastructure investment compresses.

## COLLATERAL IS WHERE THE PLUMBING BREAKS FIRST

Collateral optimization is the first convergence point for a straightforward economic reason: immobilized collateral is expensive, and tokenized collateral is mobile.

Traditional collateral settles on a T+1 or T+2 cycle, which means there is a gap between when a trade is agreed and when collateral actually moves. That gap creates timing uncertainty, which forces firms to over-collateralize as a buffer. That buffer is capital that sits idle — tied up as protection against timing risk rather than deployed for returns. For large dealers, the scale is material. The Nasdaq and ValueExchange survey puts a number on it: the average firm maintains a 7 percent excess collateral buffer, with roughly 25 percent of total collateral usage earning no returns. For Tier 1 firms, eliminating that buffer through tokenized collateral with atomic settlement can unlock an estimated \$340 million annually in interest earnings — and freeing that capital for productive use, not experimentation, is what's driving production-scale adoption.

Broadridge's DLR numbers bear this out. The trajectory from negligible volumes to \$384 billion per day in December 2025 reflects institutions acting on that logic. The CFTC's December 2025 guidance removed the last regulatory barrier by explicitly sanctioning the use of tokenized securities as derivative collateral, meaning the two prerequisites — economic incentive and regulatory permission — are now both in place.

The infrastructure is already responding. HQLAx, working with J.P. Morgan and Ownera, operates an intraday repo solution handling up to \$1 billion in daily trading volume, while Eurex Clearing is designing a DLT-enabled collateral mobilization service. BlackRock's BUIDL fund being accepted as collateral on Binance, Deribit, and Crypto.com

demonstrates that tokenized assets are already crossing the boundary between digital-native and traditional collateral pools.

The Nasdaq and ValueExchange survey puts a timeline on this: 52 percent of global firms plan to manage live tokenized collateral by the end of 2026, though the gap between intention and operational readiness is historically wide in capital markets — the production evidence from Broadridge and HQLAx is the more reliable signal. The same survey found that 70 percent of firms report daily settlement-matching and delivery issues in their existing collateral operations, which means adding a second settlement rail with fundamentally different timing characteristics lands on infrastructure that is already strained.

Collateral is where the case closes first, but the same four-domain gap shows up everywhere tokenized and traditional assets meet. The most significant implementations of blockchain in institutional finance will sit behind the scenes with minimal change to what traders, portfolio managers, or clients see. That sounds reassuring, and it is — until you look at what the back end must do: maintain data integrity, regulatory compliance, and operational resilience across two entirely different technological paradigms simultaneously, each with its own failure modes, supporting assets with different trading and settlement characteristics. The impact lands differently among participants in the ecosystem, but the back-end complexity is where the work is concentrated.

## SAME ASSET, DIFFERENT PLUMBING

The DTCC-Clearstream-Euroclear principle — same asset, same rights, same outcome — is exactly right as a design goal. Making it operational requires reconciling a number of areas where the traditional and digital stacks diverge, depending on the participant.

Settlement timing is the most immediately tangible. Traditional US equities settle T+1, a cycle the industry moved to in May 2024 — and firms lacking automation had to increase operational staffing by up to 18 percent just to handle that compression. DLT-native assets can settle atomically at T+0, which the Canton Network demonstrated in production in July 2025. Europe and the UK are targeting their own move to T+1 by October 2027, so the direction of travel in traditional markets is toward faster settlement, but it remains fundamentally different from atomic settlement. Running T+0 and T+1 concurrently does not mean running two versions of the same process. T+0 requires cash or collateral to be available at the time of trade, which changes liquidity management from a daily planning exercise to a continuous one. The two settlement paradigms impose different funding demands, exception-handling workflows, and risk profiles that must coexist within a single operational framework. They impose continuous operational demands — 24/7 margining, 24/7 reconciliation, 24/7 incident response — on middle offices built around overnight batch windows. That requires different staffing models, with real implications for who you hire and how your operations team is organized.

Settlement timing is the most visible divergence, but it's not the only one — how those settlement instructions get communicated is diverging just as fast.

Connectivity converges at two levels: how systems communicate with each other and how participants access trading marketplaces. Traditional finance runs on FIX for trading across buy-side, sell-side, and venues, and on SWIFT for post-trade settlement messaging between financial institutions; digital finance runs on APIs and DLT-native protocols. The

venue layer is further along, which is why FIX has become the institutional connectivity standard for digital asset trading. Coinbase Institutional, Kraken, LMAX Digital, Talos, FalconX, and Hidden Road all expose FIX endpoints because the buy-side will not operate two separate order-entry paradigms for what they treat as the same asset. The FIX Trading Community's Digital Assets and Technology Committee and the FIX-FinP2P Protocol Interoperability Alliance — a joint working group with Global Digital Finance — are extending FIX natively to tokenized bonds, loans, securities lending, and alternatives. In the trading marketplace, tokenized and traditional securities will largely enter through the same FIX pipe, with DLT infrastructure sitting behind it rather than in front of it.

Post-trade is where the harder normalization lives. SWIFT launched blockchain integration in November 2025 using digital ledger and token identifiers, and Citi completed a fiat-to-digital payment-versus-payment settlement through SWIFT on November 14, 2025; Chainlink's Digital Transfer Agent standard, with UBS as the first adopter, is the digital-native counterpart. The normalization layer between them — fields with no one-to-one equivalents, settlement finality that means different things in each context, error states that propagate differently across centralized and distributed systems — is where complexity concentrates. Tokenized assets also do not converge on a single chain, so multi-chain interoperability becomes a baseline requirement, and firms that treat translation layers as products rather than integrations are scaling. Fireblocks is the cleanest example: 2,400+ institutions connected, more than \$10 trillion in digital asset transactions routed, roughly \$156 million in annual revenue with more than \$100 million in ARR, and an \$8 billion valuation — built almost entirely on the cross-rail connective tissue that neither FIX nor SWIFT covers on its own.

Custody has traditionally meant intermediation through central securities depositories. Digital custody distributes across chains, wallets, and increasingly staking protocols. The SEC's Custody Rule Modernization framework from December 2025 and the OCC's Interpretive Letter 1184 from May 2025, reaffirming national bank authority to provide crypto custody, established regulatory clarity — but the operational reality is that a single asset might be held offchain, in an omnibus wallet, on one chain, bridged to another chain, or deployed in a DeFi protocol. Each state has distinct risk characteristics, recovery procedures, and audit requirements. Multi-party computation technology, which fragments key control across parties to reduce single points of failure, adds security at the cost of operational complexity. For operations leaders, the custody question has shifted from whether they can legally hold digital assets — that is increasingly clear — to how their custody model handles assets that can exist in multiple states simultaneously, and what happens when something goes wrong in a state their existing recovery procedures were never designed to address.

Tax and reporting are where some of the most unexpected friction emerges. TEFRA, the Tax Equity and Fiscal Responsibility Act of 1982, inadvertently prohibits tokenized bonds on permissionless blockchains because peer-to-peer transfers are, as raised at the March 25, 2026, Congressional hearing, functionally indistinguishable from bearer bonds — a category that TEFRA was specifically designed to eliminate. Tokenized securities require Form 1099-DA rather than the traditional Form 1099-B, creating a separate reporting track. Cross-chain asset movement severs the data lineage that brokers need for cost basis calculation, and there is no clear guidance on how tokenized transactions map to existing reporting obligations, e.g., CAT event categories. A statute enacted in 1982 to address paper bearer bonds now shapes what is possible with blockchain-native securities in 2026.

It is tempting to frame the common thread across these four domains as a data problem that AI can pattern-match its way through. That framing understates what the domains actually surface. The friction is not just different data formats; it is different settlement conventions, different connectivity and payment rails, different custody states, and different

reporting regimes, each requiring real infrastructure change rather than inference. Where AI will matter in the medium term is further up the stack: helping individual firms compose unifying layers that expose a single operational view on top of plumbing that remains fundamentally different underneath. AI-assisted reconciliation will concentrate there, not as a substitute for the plumbing beneath.

And the plumbing itself lands differently depending on where a firm sits in the ecosystem. Clearing firms face the prospect of building parallel or entirely new infrastructure — converting traditional securities into digital form and back again, managing finality that means different things on each rail. Broker-dealers carry the broadest exposure: order management, execution, custody, risk, compliance, and client-facing applications all touch the convergence, and the SEC's December 2025 guidance on tokenized securities custody now makes private key governance, DLT operational assessment, and chain-reorganization contingency planning explicit Rule 15c3-3 obligations. Buy-side investors face a quieter but equally material problem: portfolio management systems need to value, report, and perform lifecycle operations on positions that span both rails, with pricing, corporate action, and tax-lot data arriving from different sources in different formats. The four-domain gap is the same. The operational burden and the investment required to close it are not.

## THE BRIDGE IS BEING BUILT FROM BOTH SIDES

The convergence between traditional and digital finance is bidirectional, and that matters more for infrastructure planning than the convergence itself.

On the incumbent side, DTCC is tokenizing DTC-custodied US Treasuries on the Canton Network following an SEC No-Action Letter in December 2025, with a broader rollout planned for H2 2026 targeting Russell 1000 equities and major index ETFs. The London Stock Exchange Group launched its Digital Securities Hub on January 15, 2026 — a production service for 24/7 instantaneous settlement using tokenized commercial bank deposits on the Canton Network. SWIFT's approach has been to integrate blockchain into existing messaging standards rather than replace them, preserving the network effects of 11,000 connected institutions while extending reach to on-chain environments.

On the digital-native side, the most structurally significant development was the addition of Ripple Prime to DTCC's NSCC participant directory on March 2, 2026, following Ripple's \$1.25 billion acquisition of Hidden Road — making it the first crypto-linked infrastructure provider with direct access to US clearing rails. Talos launched an RFQ platform on BlackRock's Aladdin, embedding digital asset trading directly into the workflow of the world's largest asset management platform. Where incumbent firms carry decades of regulatory relationships and network effects, digital-native firms bring cross-environment architecture with no legacy constraints.

That asymmetry — deep traditional relationships on one side, cross-environment architecture on the other — has three consequences for how the next two years play out.

**M&A AND PARTNERSHIPS WILL CONCENTRATE AT THE BRIDGE LAYER.** Ripple's acquisition of Hidden Road ahead of Ripple Prime's NSCC access is one expression of it. The pattern is likely to repeat as incumbents decide that buying digital-native capability is cheaper than building it, and digital-native firms decide that buying regulatory and clearing relationships

is the fastest path to institutional scale. Expect consolidation at the connective tissue before it happens anywhere else in the stack.

**THE INFRASTRUCTURE LANDSCAPE WILL NOT CONVERGE TO A SINGLE ANSWER.** Firms with deep traditional infrastructure may find the incumbent path — extending existing systems to handle digital assets — to be the lower-friction starting point. But lower friction is not the same as low friction. Extending legacy systems to handle atomic settlement, multi-chain custody, and 24/7 operations can require rebuilding parts of the stack that have been stable for decades, and the operational burden during the transition often falls hardest on traditional firms whose existing volume cannot pause while the new rails come online. The opposite direction carries its own costs. Neither path is a shortcut, and full dual-rail operations — trading, settlement, custody, and reporting across both rails with AI-assisted unifying layers on top — is a 2028-and-beyond picture, not a 2026 one.

**DATA FRAGMENTATION IS THE BINDING CONSTRAINT UNDERNEATH ALL OF IT.** Traditional vendors like Broadridge, FIS, and SimCorp are integrating digital capabilities into their core engines — Broadridge has indicated plans for dual-rail trade processing by the end of fiscal year 2026. Digital-native firms are building traditional compliance layers. But the starting position for most firms is already strained: according to SimCorp's 2026 survey of 200 buy-side executives, 63 percent of firms lack unified data across front, middle, and back offices. Adding tokenized assets with different data formats, settlement cycles, and custody models does not create a new data problem. It multiplies the existing one.

Which is why the question every board and executive team has to answer in 2026 is not whether tokenization is coming. It is a question of whether the savings — atomic settlement, capital efficiency, collateral mobility — are worth the sustained investment required to support dual rails. For the largest firms, the math works cleanly: \$340 million in annual upside for Tier 1 firms from Nasdaq and ValueExchange, and the 15-20 percent margin advantage Deloitte identified for early movers' compounds across the decade, the two rails will coexist. For a middle-market broker-dealer or clearing firm, the same duplication consumes up to a third of that upside before the firm sees any of it.

The convergence narrative for tokenized finance has tended to focus on when the two rails merge. They will not, at least for a while, and possibly not ever in any form that makes the duplication costs disappear. Which means the cost-benefit question does not resolve itself. It sits as a standing strategic question — re-answered as the vendor layer consolidates, as use cases expand beyond collateral, and as competitive dynamics force firms either to extend dual-rail capability or narrow their participation.

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This article was jointly authored by [Nilesh Nanavati](#) of [OPCO Advisory Inc.](#) and [Oliver King](#), CEO of [Mythmaker Labs](#).