



Understanding the Canton Network and Ethereum for Post Trade

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Executive Summary

What steps should capital markets firms take to build their business cases for a world of native and tokenized assets as the technologies mature?

This report evaluates the Canton Network, the distributed ledger technology (DLT) “network of networks” built using DLT developed by Digital Asset, and the Ethereum public blockchain ecosystem as mechanisms for securities settlement and post-trade processing.

Interoperability has been one of the key challenges preventing firms from scaling DLT. The Canton Network claims to offer a breakthrough in solving this problem, but the securities industry has seen DLT pilot projects for over a decade now. Ethereum, a public decentralized ecosystem, presents another option, although concerns remain about stability, security, privacy and regulatory treatment. Why could now be different for crossing through into adoption and daily use?

Meanwhile, traditional financial services firms are growing their businesses in crypto and tokenized assets. The sell-side is ramping up issuance of tokenized bonds and stablecoins. Large buy-side firms like BlackRock and Franklin Templeton have launched bitcoin and Ethereum ETFs and tokenized money market funds. While still a small part of the broader financial industry, DLT-based financial instruments that can be used by the general public is a realistic prospect.

The securities finance industry has seen slower than anticipated uptake of private permissioned DLT networks. While Canton and Ethereum show promise and may solve an important piece of the jigsaw, they are still only one part of the wider puzzle.

Based on conversations with market participants, this report provides an independent evaluation of the Canton Network and Ethereum for securities settlement and post-trade processing and offers practical guidance on how financial firms should prepare for adoption. It should be read by any market participant in securities processing and post-trade across any product that could be impacted by DLT.



The Argument for DLT in Settlements and Post-trade

Key Points:

- *Distributed ledger technology (DLT) is known to solve critical problems in data access and reconciliation but competes against legacy systems and business processes that still work well.*
- *While the market has seen many DLT initiatives in recent years, the market has a chicken and egg problem: there needs to be more issuance and tokenization in order to generate more liquidity, which will bring on more investment firms and generate yet more traction.*
- *This report presents an independent evaluation of the value proposition of the Canton Network and Ethereum for market participants to make their own decisions on where these platforms fit and how soon they should plan for adoption.*

There have been notable improvements in securities settlement and post-trade processing in recent years including the North American adoption of T+1, European regulations to ensure settlement discipline, and regulatory reporting initiatives that can only be met with integrated data that in turn support efficient trades processing. Still, the current model involves a high level of manual effort and friction, especially when moving assets globally. The securities industry has been experimenting with distributed ledger technology (DLT) as a way to solve these problems.

The list of challenges and wish-list fixes in securities settlement is long. Many firms must reconcile multiple versions of the truth, leading to settlement fails, as well as operational costs and increased risks. Margin calls can take multiple days to settle, resulting in counterparty risk, capital charges, and trapped liquidity. A lack of collateral mobility inhibits collateral optimization while trade breaks and reconciliation of positions between counterparties is unfinished business. Market

participants know that they need centralized intermediaries to ensure their smooth functioning, which creates costs and adds friction, but the status quo is the best way to get the job done right now, especially with substantial investments already made in legacy infrastructures.

A key argument for the use of DLT in settlement and post-trade is its ability to achieve near real-time delivery-for-payment (DvP) and deliver-for-delivery (DvD) settlement and provide that information to all parties in the trade at once. This reduces settlement and counterparty risk, leading to lower capital charges and increased collateral mobility. Eliminating the need for reconciliation between counterparties can reduce settlement fails, thus driving significant cost savings. Real-time settlement could also free up collateral and liquidity that firms can then use for short-term financing or cash investments in intraday repo. Central counterparties (CCPs) deliver many of the same functionalities, but the argument for DLT is that it can work across any cleared or bilateral market, which is a significant advantage to current processing. The more vocal proponents of DLT argue that it will eventually remove the need for intermediaries (although the death of the intermediary may have been greatly exaggerated) and could underpin an eventual move to T+0.

The idea of smart contracts is another attractive add-on to DLT albeit with reservations. Smart contracts can automatically execute workflows through embedded logic, enabling 24/7 processing and cost savings by reducing manually intensive processing. However, crypto smart contracts currently operate without “adult supervision” in many cases; trading partners are captive to the code, which can be corrupted; and reference data (“oracles”) can be hacked. The securities industry has already shown it can fix these problems by reintroducing institutional guardrails and accountability.

The market has seen an increase in activity in various aspects of tokenization and DLT in the regulated finance space in recent years. This includes:

- The use of DLT platforms for intraday repo trading and the tokenization of existing assets.
- Greater issuance of tokenized bonds such as the February 2024 HSBC and HKMA green digital bond offering.¹
- The launch of tokenized money market funds by BlackRock, Franklin Templeton and Fidelity.
- Pilots and live use of stablecoins such as JPM Coin and Fidelity as a way to settle the cash leg of transactions on chain.
- Regulatory approval for crypto ETFs and their launch by several large asset managers including BlackRock, gaining billions in inflows.²
- Industry initiatives such as the Regulated Liability Network and regulator-driven initiatives including the Monetary Authority of Singapore's Project Guardian.^{3 4}

¹ "HSBC Delivers World's First Multi-Currency Digital Bond Offering," HSBC, February 15, 2024, available at <https://www.gbm.hsbc.com/en-gb/insights/financing/first-multi-currency-digital-bond-offering>

² "Ethereum is the Microsoft of Blockchains; ETH Underperformance May Reverse into Year-End: Bitwise," CoinDesk, September 18, 2024, available at <https://www.coindesk.com/markets/2024/09/18/ethereum-is-the-microsoft-of-blockchains-eth-underperformance-may-reverse-into-year-end-bitwise/>

³ <https://regulatedliabilitynetwork.org/>

⁴ <https://www.mas.gov.sg/schemes-and-initiatives/project-guardian>

- Continuing central bank experimentation with central bank digital currencies including repo trading using natively issued bonds (CBDC).^{5 6}

Although these initiatives create momentum, market-wide adoption of DLT has not taken place for a number of reasons and there are still plenty of critics who think that DLT remains a solution in search of a problem. A build-up of momentum reads like a chicken and egg problem: the issuance of more tokenized assets on chain can support more of a liquid secondary market for these assets, assuming there is a way to securely mobilize those securities across the market. Currently only a tiny fraction of traditional assets is tokenized and it will take time for critical mass to be reached: HSBC estimates that digital assets will represent between 5% and 10% of global assets by 2030, while Citi Global Perspectives and Solutions forecasts USD\$4 trillion to USD\$5 trillion of tokenized securities by the same year.⁷

There needs to be a way to seamlessly combine the processing of movements on DLT networks across cash, collateral and derivatives, with the ability to carry out the cash legs of these transactions on chain using digital money (stablecoins, CBDC or money-like instruments such as money market funds). There needs to be greater interoperability between the underlying systems processing each of these legs, from securities issuance, to funding and financing, to cash settlement. At present there are DLT networks that do each of these things, but they are fragmented and siloed.

⁵ “Not waiting on CBDC: DLT already connects cash leg to Eurosystem,” Finadium, November 11, 2024, available at <https://finadium.com/not-waiting-for-a-wcbdc-dlt-already-connects-cash-leg-to-eurosystem/>

⁶ “SocGen transacts repo with Banque de France on Ethereum,” Finadium, December 13, 2024, available at <https://finadium.com/socgen-transacts-repo-with-banque-de-france-on-ethereum/>

⁷ “Unlocking the power of securities tokenisation,” UK Finance, 2023, available at <https://www.ukfinance.org.uk/system/files/2023-07/Unlocking%20the%20power%20of%20securities%20tokenisation.pdf>

Market participants, fintechs and market infrastructure providers have been grappling with the issue of interoperability. In response, technology firm Digital Asset launched the Canton Network in May 2023 alongside over 30 financial market participants. According to the press release, “The Canton Network enables financial institutions to experience a safer and reconciliation-free environment where assets, data, and cash can synchronize freely across applications.”⁸ This sounds idyllic. At the same time, market participants are building applications and platforms on private versions of public blockchain networks like Ethereum, and thinking about how to overcome the privacy, interoperability and compliance challenges of enabling these private networks to leverage the innovation in public blockchain and DeFi.

Finadium has conducted an independent analysis on the value propositions of the Canton Network and Ethereum as options for securities settlement and post-trade processing. We examine the similarities and differences between the Canton and Ethereum networks, comparing them on key dimensions. Building on our prior work in crypto markets, DLT, smart contracts and CBDCs, along with our core expertise in capital markets, the report looks to inform market participants on how each system works, why or why it does not solve existing or potential problems, and what trading firms, vendors and regulators may want to do now to prepare for adoption. It also evaluates the extent to which recent developments will amplify the business case for a more widespread move to DLT in securities settlements and post trade, and act as a catalyst for adoption.

This generalist report should be read by any market participant engaged in securities settlement or post-trade processing in the global capital markets industry, as well as technology, legal and service providers.

⁸ “New Global Blockchain Network of Networks for Financial Market Participants and Institutional Assets,” Canton Network, May 9, 2023, available at <https://www.canton.network/canton-network-press-release>

The Canton Network: What is it and How Does it Work?

Key Points:

- *The Canton Network is a “network of networks” that aims to address the lack of interoperability and regulatory-grade, scalable privacy within and across DLT networks.*
- *A key part of the pitch is Canton’s Global Synchronizer, the decentralized public-permissioned infrastructure that acts as the glue between networks instead of relying on bridges that are vulnerable to settlement and cyber risks.*
- *Recent pilot projects have demonstrated a deep level of institutional involvement and the simulation of complex real-world scenarios across multiple underlying applications.*

The Canton Network aims to solve the dilemma of public vs. private blockchains. On the one hand, public blockchains offer decentralized ecosystems where application builders can innovate and apps can interoperate, combining the best of different chains and platforms. For example, in the DeFi world of public chains like Ethereum, a decentralized app can take advantage of the native smart contract interoperability to deliver entirely new, composable financial instruments, marketplaces and experiences, from DeFi lending to automated market making.

But this flexibility comes at the expense of security and control. Anyone can access public networks and transact or build apps in a pseudo-anonymous way with little to no oversight, and a record of all transactions is visible to everyone on the network. These types of networks are not fit for regulated financial institutions to transact on from the perspectives of Know Your Customer and Anti-money Laundering (KYC and AML) obligations, and criminal activity has been rampant and well-publicized.

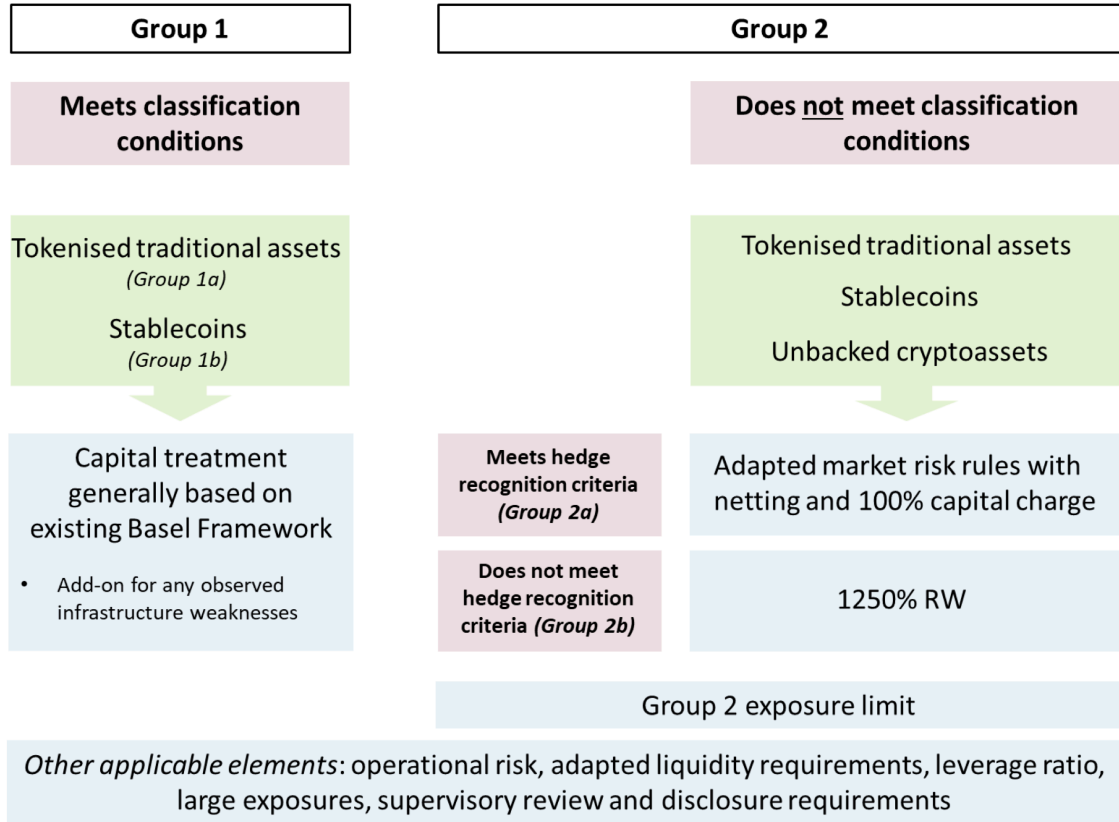
The Basel Committee on Banking Supervision (BCBS) has assigned a punitive 1,250% risk weighting to assets held on public blockchain networks across two major categories of digital assets along with subgroups (see Exhibit 1).⁹ There have been some refinements since then, including that the Committee would approve stablecoins that use repo as a Group 1b asset. While this group has an 85% Required Stable Funding (denominator) weight in the Net Stable Funding Ratio (NSFR) and no inflow benefit to the Liquidity Coverage Ratio (LCR), we see benefits to bank dealer desks. This is a however a special case. Many BCBS concerns are based on banks' limited ability to conduct due diligence over third parties who carry out basic operations relating to permissionless blockchains, and risks around settlement finality, privacy and liquidity.

The alternative to public networks is private permissioned networks that have controls over who can access them and see details of transactions. Most DLT networks used by regulated financial institutions tend to be private permissioned networks (See Exhibit 2). However, their closed nature means they end up as siloed 'walled gardens' with little interoperability, making it hard to scale perceived benefits. Liquidity is fragmented, assets are trapped on digital islands and the cash leg of an on chain transaction has to be settled off chain. Market participants are then unable to execute the full lifecycle of a transaction using DLT in a seamless way, as different parts of a transaction are executed on different underlying ledgers and applications.

⁹ "SCO 60 Cryptoasset exposures," Basel Committee on Banking Supervision, Version effective 01 Jan 2026, available at https://www.bis.org/basel_framework/chapter/SCO/60.htm

Exhibit 1:

Basel Committee on Banking Supervision crypto risk exposure buckets for regulated entities



Source: Basel Committee on Banking Supervision

Exhibit 2:

Trade-offs between public and private DLT networks

Network Type	Accessibility	Permission	Privacy	Interoperability	Control
Public Permissionless	Open to anyone	No permission required	Low	High	Low
Public Permissioned	Open to anyone	Requires permission for certain activities	Low	Medium/High	Medium
Private Permissionless	Restricted to verified participants	No permission required	Medium	Low	Medium
Private Permissioned	Restricted to verified participants	Requires permission for certain activities	High	Low	High

Source: Finadium

Digital Asset claims to have solved these problems with the Canton Network. The Canton Network is positioned as a public layer 1 "network of networks" with privacy, that can be envisioned as a unified ledger. Canton's aim is to enable independently operated blockchains and their applications to interoperate in a way that preserves privacy and control, breaks down siloes between networks and ticks regulatory boxes. Digital Asset is pitching Canton as a 'have your cake and eat it too' play that combines all of the advantages of both public and private DLT networks, with none of the disadvantages.

The Canton Network is based on the Canton blockchain protocol, with applications built using the Daml smart contract language. These technologies have been used by regulated financial institutions in production for a number of years, including Goldman Sachs, HSBC, BNP Paribas and Broadridge. Financial market participants launched the Global Synchronizer. This is a distributed version of Canton run by market participants and with governance supported by Linux, to create the public permissioned blockchain infrastructure to deliver on the ultimate vision of synchronized financial markets. Canton includes the participation of a group of financial institutions on the buy- and sell-sides, infrastructure providers like Depository Trust & Clearing Corporation (DTCC) and Euroclear, as well as a range of fintechs and consultants. Pilot participants include abrdn, Baymarkets, BNP Paribas, BNY, BOK Financial, Broadridge, Cboe Global Markets, Commerzbank, DRW, DTCC, Euroclear, EquiLend, Fiùtur, Generali Investments, Goldman Sachs, Harvest Fund Management, IEX, Nomura, Northern Trust, Oliver Wyman, Paxos, Pirum, Standard Chartered, State Street, Visa, and Wellington Management. While Digital Asset provides the technology backbone for Canton, it has no more or less control over the network than any of the other members.

Canton also has support from the Linux Foundation, a non-profit that provides independent governance through the Global Synchronizer Foundation (GSF). The rationale behind this is to provide transparency into the operations of the Canton

Network. The Linux Foundation aims to provide a credible, independently run forum for Canton Network participants to raise improvement proposals. It also offers a window into decisions made by the organizations running the decentralized consensus infrastructure.

This replicates the prior use of blockchain foundations seen in public networks but introduces Linux as a way to support fairness and bring its expertise in running open-source foundations to Canton. This has helped to drive big financial industry names to join the foundation, including Euroclear and Moody's at the time of writing, with other major names disclosed off the record to be announced in 2025, according to Digital Asset.

Canton refers to the concept of the Swiss Canton system of government. Each Canton has autonomy to set its own governance rules and tax regimes but interoperate under the Swiss federal government. Similar to this, the Canton Network provides interoperability between underlying sovereign permissioned DLT networks but gives them autonomy to run their own infrastructure. Blockchain applications in production across the network include those run by HSBC, Broadridge, EquiLend and Goldman Sachs. The network's underlying applications support a range of use cases across tokenized assets, cash and securities, trading, custody, securities finance, clearing and settlement, and trade finance.

Digital Asset aims to harness similar benefits to public DLT networks that make it easy for third party developers to build apps on top of the platform. Conceptually similar to how Apple added value to the iPhone through its app store model, Digital Asset enables developers to create apps with out of the box accelerators to tokenize assets and bring them to the network. It also offers enterprise development tools and Daml smart contract libraries for its customers to develop custom applications. All of the core software is open source, including the software underlying the decentralized infrastructure. In theory, this means any group of firms

could collaborate to create their own decentralized infrastructure for Canton applications to leverage. Users can then connect to multiple applications from a single access point via Canton, either running themselves, using a hosting provider, or gaining access via a connected custody service provider.

Canton uses a tokenomics model to incentivize app developers, infrastructure providers, and also participants that bring utility to the network. Tokenomics refers to the design of economic systems within blockchain-based projects, focusing on rules and incentives around the issuance, distribution, and management of digital tokens. This provides a means for value exchange and promotes desired behaviors that help maintain a healthy ecosystem.

Canton achieves this through the mechanism of Canton Coin, a token that node operators on the network can mint in return for developing apps, running an instance of the decentralized infrastructure, or taking part in applications and therefore validating transactions they are a party to. They can then use Canton Coin to pay fees for transactions that use the decentralized infrastructure. Canton has designed the coin so that its value only increases if third parties create and operate apps that add utility to the network.¹⁰

The ability to mint Canton Coins is inflationary as it increases the number in circulation. However, when a user executes a transaction on the network, the charge for validating the transaction is 'burned'. The coin is then removed from circulation. This aims to create equilibrium, avoiding excessive volatility in coin value, and reducing incentives for the type of speculation seen in the crypto world. The mechanism would appear to provide a solution to the wild swings in transaction fees that have been a feature of public permissionless blockchain

¹⁰ "Canton Coin: A Responsible Approach to Digital Tokens," Digital Asset, available at <https://www.digitalasset.com/hubfs/Canton%20Coin%20A%20Responsible%20Approach%20to%20Digital%20Tokens.pdf>

networks such as Ethereum. In times of market volatility, transaction costs have skyrocketed to very high levels. Canton Coins would make fees more predictable and avoid spikes for market participants. It will be interesting to see how this plays out in the real world if the network gains liquidity, and whether the price of Canton Coin fluctuates in a stable way. Whether the ability to mint coins offsets fees enough to act as an incentive for firms to develop apps or validate transactions also remains to be seen.

Canton has run several recent pilots that relate to securities finance and collateral management use cases. One Q4 2023 exercise simulated a margin call, then used an intraday repo to obtain a tokenized money market fund to use as collateral.¹¹ All legs of the transaction took place on DLT applications. Canton participants claimed that the pilot demonstrated real-time atomic settlement across multiple applications for asset tokenization, fund registry, digital cash, repo, securities lending, and margin management transactions (see Exhibit 3). The pilot involved 45 financial institutions, exchanges, asset management firms and capital markets technology providers.

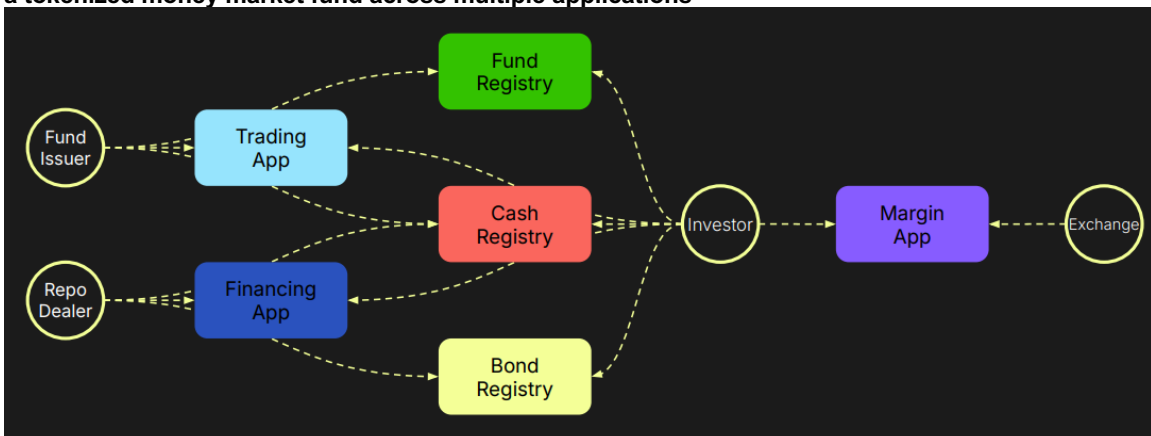
A further pilot in summer 2024 explored executing a margin call for a derivative transaction using a tokenized US treasury as collateral.¹² According to Canton, the pilot demonstrated atomic settlement across multiple applications, including a margin app, fund registry, cash registry and repo platform. The pilot also included a recall of the assets and simulated a default scenario. 26 institutions were involved including banks, asset managers, CCPs, custodians/collateral agents and a central securities depository (CSD), with infrastructure run by Canton and DTCC.

¹¹ “Connected capital markets take flight,” Canton Network, available at <https://www.canton.network/insights-from-the-canton-network-pilot>

¹² “DTCC and Digital Asset Complete Successful Pilot to Test Collateral and Margin Optimization through Tokenization,” Canton Network, September 23, 2024, available at <https://www.canton.network/press-release-dtcc-digital-asset-ust-treasuries-use-case-pilot>

These pilots have a notable level of institutional involvement and the simulation of complex real-world scenarios across multiple underlying applications. Modelling a counterparty default scenario and demonstrating the ability to take possession of collateral could be an important step in reassuring participants that the network supports the risk mitigation aspects of collateralization. Canton has also recently completed pilots using tokenized USTs, gilts, Eurobonds and gold as collateral in securities lending and repo transactions.¹³

Exhibit 3:
Canton Network pilot demonstrating atomic real-time settlement of a margin call, collateralized with a tokenized money market fund across multiple applications



Source: Digital Asset

If these pilots are adopted by a significant portion of the industry in production, they could lead to greater asset mobility, reduced counterparty and settlement risks, as well as significant efficiencies and cost savings. Greater interoperability would also increase the benefits and network effects available from the underlying networks. This could improve the business case for adoption and start to drive more industry

¹³ “Digital Asset, Euroclear, and The World Gold Council Participate in a Successful Pilot to Tokenize Gilts, Eurobonds and Gold,” Canton Network, October 2, 2024, available at <https://www.canton.network/press-release-unlocking-new-collateral-pools-and-24x7-mobility>

momentum towards a move to DLT-based infrastructure. This still remains an “if” scenario however.

How Canton Claims to Solve the Interoperability Problem

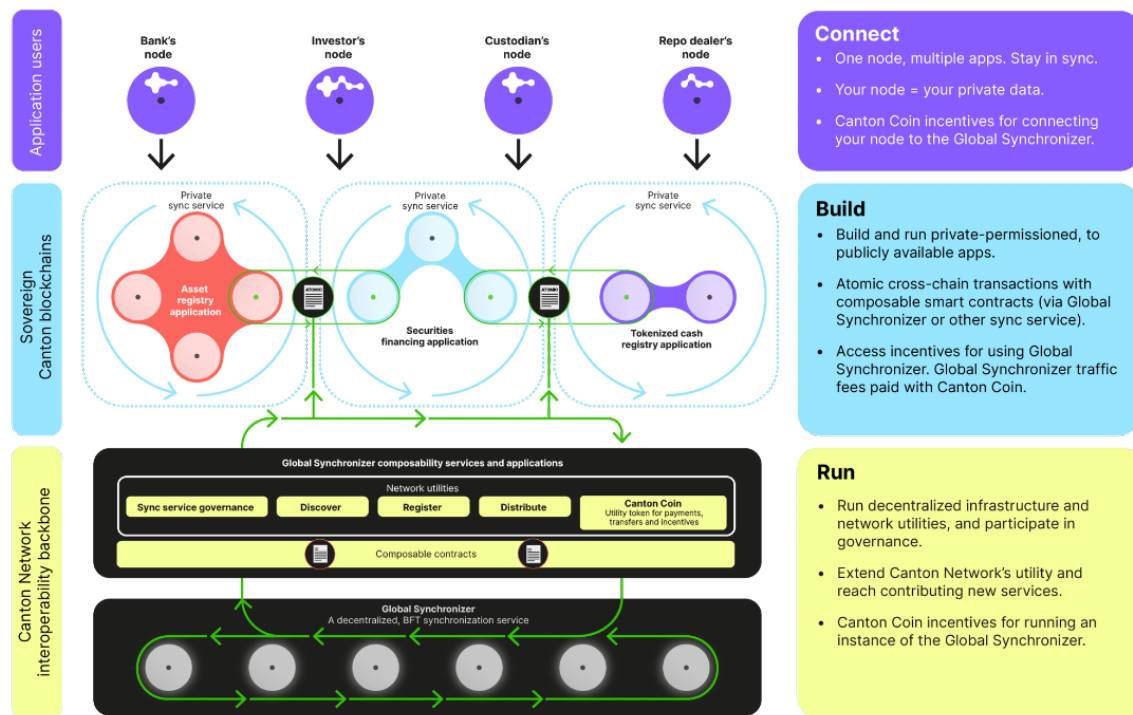
The Canton network was designed to provide interoperability while addressing the privacy and control issues seen in other public networks. Canton’s protocol validates and confirms transactions through stakeholder validation. This means only parties to a transaction can see it and confirm it, and is similar to the way other private blockchain networks work. However, the synchronizer acts purely as a router for transactions, with sequencing based on smart contract logic, and validation performed only by participating nodes. This ensures that transactions are also completely private from the operators of a synchronizer, unless that operator is involved in the transaction.

Applications can elect to use privately run synchronizers, the Global Synchronizer, which is a decentralized version of the Canton synchronizer, or a combination of these depending on the use case and a given firm’s trust requirements. Instances of the Global Synchronizer are run by Digital Asset, but also around 15 other organizations who are all members of the Linux Foundation managed Global Synchronizer Foundation. Digital Asset is pitching the Global Synchronizer as a key differentiator versus competitors such as R3’s Corda and Ethereum.

The Global Synchronizer is used to execute atomic transactions across different independently operated Canton-based applications and networks. In transactions with multiple legs, private synchronizers and the Global Synchronizer interoperate to ensure that related legs, for example in a DvP transaction, execute simultaneously or in the correct order. This prevents one leg settling unless another leg also settles, mitigates double spend risk, and supports atomic settlement.

Canton says that it is different to other networks because it doesn't use bridges for interoperability between the underlying DLT platforms and apps (See Exhibit 4). Bridges involve messaging and APIs that industry infrastructure and systems have used to interact for many years. However, Canton points out that bridges negate some of the value DLT provides, as they reintroduce settlement risk and a need for reconciliations. They also create attack vectors that hackers can exploit. The theft of USD\$615 million through the breach of the Ronin network bridge in 2022 is a stark example of this.¹⁴ Canton says that it overcomes the disadvantages of bridges through the use of its Global Synchronizer, enabling it to act as a mechanism for true atomic settlement without bridges. This maintains the privacy and control necessary for regulated financial institutions.

Exhibit 4:
Canton Network architecture



Source: Canton Network

¹⁴ "Update: Crypto Hackers Exploit Ronin Network for \$615 Million," BankInfo Security, April 14, 2022, available at <https://www.bankinfosecurity.com/crypto-hackers-exploit-ronin-network-for-615-million-a-18810>

The Ethereum Network: What is it and How Does it Work?

Key Points:

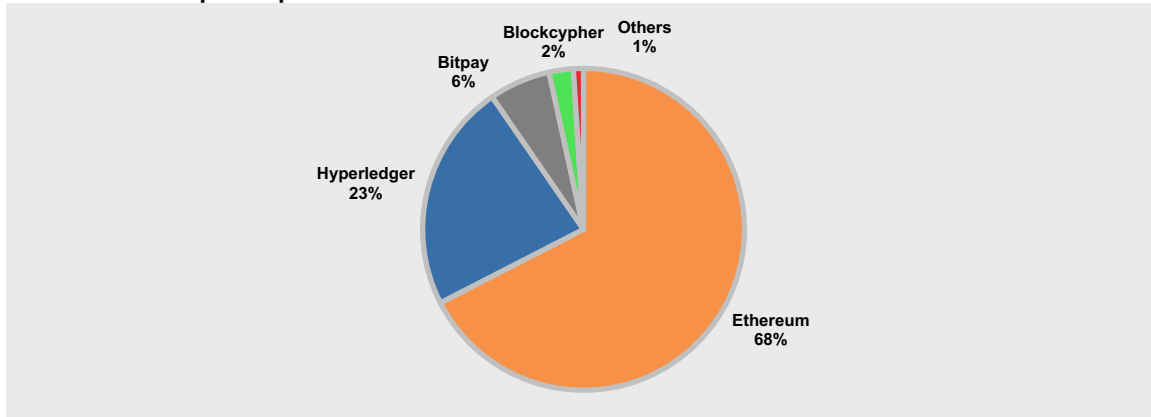
- *The Ethereum Network is a decentralized public permissioned blockchain network based on smart contracts.*
- *App developers can build apps on top of Ethereum and there are no limits to the type of smart contract that can be built; it is more like a marketplace of financial services, games, social networks and other apps than a cryptocurrency platform.*
- *Traditional regulated financial institutions have been issuing tokenized bonds, money market funds, and stablecoins on Ethereum-based platforms, as well as launching ether ETFs.*

As compared to the private Canton Network, Ethereum is a decentralized, open source blockchain platform. It was designed to enable developers to build and deploy smart contracts and decentralized applications (dApps). Created by developer Vitalik Buterin and launched in 2015, Ethereum goes beyond bitcoin's peer-to-peer transactions by introducing programmable transactions through the use of smart contracts. These self-executing contracts automatically enforce agreements based on pre-defined conditions. This enables trustless interactions without the need for intermediaries. Ethereum has become the leading global platform for DLT developers and smart applications, with an estimated 67% market share, according to vendor 6Sense (see Exhibit 5).

The ability to build on top of the Ethereum network has led to a wave of innovation, greatly enhancing its network value and piquing the interest of traditional financial firms. The flexibility provided by smart contracts has enabled developers to model a wide range of assets from equities, bonds, and real estate to digital representations of art held as non-fungible tokens (NFTs). Ethereum can be

thought of as the Microsoft of smart contract blockchains, with its native token, Ether, having a market cap five times larger than its nearest competitor. More than 60% of all DeFi assets are locked on Ethereum.

Exhibit 5:
Ethereum development platform market share



Source: 6Sense

Ethereum is a truly decentralized network not controlled by a single entity. Instead, the network is maintained by a global community of individuals, often hobbyists and enthusiasts, as well as organizations, who run "nodes" on the Ethereum Virtual Machine (EVM). These nodes verify transactions and ensure the network operates securely. Anyone can set up a node, and as of May 2024, there were over a million node validators connected.¹⁵ The ease of building on top of Ethereum means it also has the most active developers of any network.¹⁶

¹⁵ "Ethereum Hit 1 Million Active Node Validators, Will ETH Price React," FX Empire, May 13, 2024, available at <https://www.nasdaq.com/articles/ethereum-hits-1-million-active-node-validators-will-eth-price-react>

¹⁶ "Ethereum research team numbers surge 2,100% since 2019," Cointelegraph, August 30, 2024, available at <https://cointelegraph.com/news/ethereum-developer-surge-2100-since-2019>

While there is no central authority, certain groups and individuals play significant roles. The Ethereum Foundation is a nonprofit organization that provides funding and support for the network's development. Its aim is to drive the use of Enterprise Ethereum and Mainnet Ethereum blockchain technology as an open standard that meets the needs of enterprises. Companies including J.P. Morgan, Santander, Microsoft and EY have set up their own development teams to take advantage of the technology.

Ethereum has a different validation functionality than other blockchains like the Bitcoin network. In 2022, Ethereum transitioned to a more energy-efficient consensus mechanism called Proof of Stake (PoS). In PoS, validators (instead of miners) lock up at least 32 Ether (ETH), Ethereum's native cryptocurrency, as a stake. As of Oct 20, 2024, the value of 32 Ether was \$86,342. Validators staking the required amount of Ether can verify transactions, and validators are rewarded in ETH for honest behavior and penalized (slashed) for dishonest or malicious behavior. Ether can also be used to pay for transaction fees (known as gas fees), services, and computational resources on the platform.

To avoid bad actors manipulating the validation process, Ethereum requires two-thirds of the network's validators to reach consensus in order to finalize each new block added to the chain. The staking protocol means a bad actor would need to build up and potentially lose a stake in the tens of billions of dollars to manipulate ledger entries. This consensus mechanism is a key element of the decentralized nature of Ethereum and is designed to maintain the health of the ecosystem. Despite this, Ethereum is still susceptible to smart contracts scams, DeFi structures frauds, and hackers.

Use Cases for Ethereum by Traditional Financial Firms

Traditional financial institutions in regulated markets have shown interest in tapping into the innovation enabled by Ethereum through its decentralized nature, the ability to build apps on top of it and its interoperability. They have largely done this by creating private versions of Enterprise Ethereum with additional privacy and permissioning. One example is J.P. Morgan's Ethereum-based Kinexys (formerly Onyx) platform. Recent Kinexys use cases include the collateralization of an OTC derivative transaction between BlackRock and Barclays using a tokenized BlackRock Market Fund and the issuance of JPM Coin. Another pilot used Enterprise Ethereum to execute a cross chain intraday repo transaction across Corda and Ethereum by Fnality and HQLA^X.

In addition to collateralized transactions, BlackRock has issued its tokenized money market fund using Ethereum, and Société Générale recently issued a tokenized bond on the network. While not directly issued on the Ethereum platform, asset managers including BlackRock, Franklin Templeton and Fidelity have launched Ether ETFs, which may attract institutional liquidity and reduce the volatility of Ether, helping the market to mature.

Private versions of Ethereum come at the cost of lack of interoperability. To harness the true benefits of the public permissionless Ethereum network, a number of issues around privacy, control, security, stability, and concentration risks must be overcome. Transaction processing speed and cost also present barriers to wider adoption by regulated TradFi firms.

Comparing Canton and Ethereum

Key Points:

- *The Canton Network compares favorably to the public Ethereum network on nearly every front for regulated financial services business.*
- *Public Ethereum networks continue to be entirely unsafe for secure transactions, a point that Digital Asset emphasizes is critical to the functionality of the Canton Network.*
- *Private Ethereum networks have some characteristics that may make them more attractive than the Canton Network even if they remain siloed due to being written in Ethereum code, not Digital Asset’s Daml.*

In this section, we compare the Canton Network with the public Ethereum network. This is an important distinction as we are not evaluating private permissioned networks built on the Ethereum protocol, each of which have their own distinct characteristics. Digital Asset argues that the Canton Network is better than Ethereum across interoperability, privacy and control. We add a need to assess network governance, resilience, scalability, cost, security and competitive dynamics. We will make the assumption at the onset that these solutions are solving actual problems today and are not in search of their problem set; this point however may still need to be proven out by market participants.

Interoperability	
<p>Canton claims to be the only network to offer true interoperability and composability between applications, while also maintaining privacy. A recent Canton webinar detailed why the network does not rely on bridges for interoperability between its underlying</p>	<p>Ethereum has been designed to make it easy to develop apps that combine functions and interoperate with the main Layer 1 (L1) Ethereum chain. This has driven an explosion of applications and Layer 2 (L2) chains to support specific apps, creating network effects across the ecosystem. L2 chains also help with scalability and throughput while lowering</p>

<p>networks like competitors do.¹⁷ While solving for interoperability, bridges reintroduce privacy issues as well as counterparty, settlement, and liquidity risks.</p> <p>Canton currently only enables on-chain atomic interoperability between regulatory-grade financial applications written using the Daml smart contract language. This means that the Canton Network is only interoperable with Ethereum-based networks or those built by competitors such as R3 through traditional bridges, APIs and messaging, in the same way that other kinds of cross-ledger integrations work. This reduces some of the value of using DLT in the first place. However, by using Digital Asset’s tokenization utility, it is possible to issue tokenized assets originally issued on Ethereum on Canton too. The recent Hashnote announcement by Canton provides an example.¹⁸ Hashnote had already issued its US Yield Coin (USYC) on Ethereum but this option lacks privacy. Bringing the coin onto Canton means it can now take advantage of Canton’s privacy features.</p>	<p>transaction costs. This is because they process transactions off the main L1 chain and then roll them up to the main chain in batches. While interoperability is high between the main L1 Ethereum network and L2 chains, there is still a lack of interoperability between different L2 chains.¹⁹ Currently this is achieved through bridges that act like an API in traditional software applications and involves messaging between apps. However, this introduces privacy issues, settlement risk and a need for reconciliations, while also creating new attack vectors that hackers can exploit. Ethereum is looking at ways to address this although a solution could be years away.²⁰</p>
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¹⁷ “Canton Pilot Demo: Real-world asset tokenization with connectivity and control,” Digital Asset, April 25, 2024, available at <https://www.brighttalk.com/webcast/20260/611211>

¹⁸ Hashnote brings USYC to the Canton Network to offer the first tokenized money market fund with built-in privacy,” Canton Network, October 15, 2024, available at <https://www.canton.network/press-release-hashnote-brings-usyc-to-the-canton-network-to-offer-the-first-tokenized-money-market-fund-with-built-in-privacy>

¹⁹ “Ethereum’s Coming Interoperability Problem,” Axelar, September 29, 2023, available at <https://www.axelar.network/blog/layer-2-interoperability>

²⁰ “Vitalik Buterin believes Ethereum Layer-2 networks are close to solving the interoperability problem,” CryptoSlate, August 6, 2024, available at <https://cryptoslate.com/buterin-believes-layer-2-are-close-to-solving-the-interoperability-problem/>



Privacy	
<p>Canton claims to have a unique privacy model that offers granularity at the smart contract level, including sub-transactions, and sees this as part of its secret sauce that differentiates it from other unified ledgers. This makes it possible to control who sees specific parts of transactions by splitting them into their component parts. For example, in a DvP transaction with multiple legs, each participant can only see details of the leg that relates to them. This allows users to compose transactions across multiple applications without sacrificing privacy.</p> <p>To assure data integrity and security, the Canton Network uses a ‘proof-of-stakeholder’ model to reach consensus. All involved parties confirm they are in agreement with the terms of a transaction governed by a smart contract. The node of every party has a hash of that validation, and the hash must match across the board for the transaction to complete.</p>	<p>The level of privacy on the public Ethereum blockchain is not currently suitable for regulated financial institutions. Everyone on the network can see details of all transactions on the network. This would expose sensitive client data and does not satisfy regulatory requirements. Ethereum is looking to solve this with technologies such as Zero Knowledge Proofs (ZKProofs). ZKProofs are cryptographic protocols. They allow one party (the prover) to demonstrate to another party (the verifier) that they possess certain information or can perform certain computations. They can do this without revealing any details about the information or the computations themselves. However, ZKProofs are a relatively new technology that has not yet been fully battle-tested for mission critical, real-world applications. They contain complexities that can lead to the potential for bugs and issues around recoverability, according to Digital Asset.²¹</p> <p>ZKProofs and other privacy solutions are being actively explored by banks. J.P. Morgan recently conducted research and pilots in this area through its Kinexys lab. While showing promise, these solutions are still beset by a range of hurdles that need to be overcome, including high costs and computational requirements, a lack of standards and scalability issues.²²</p> <p>They should therefore not be seen as a short-term panacea for privacy concerns with public DLT networks. As the technology matures, it could lead to enterprise-grade privacy that</p>

²¹ “Zero-Knowledge Proofs for Regulated Financial Institutions: Do the Risks Outweigh the Rewards?” ItProToday, October 3, 2024, available at <https://www.itprotoday.com/regulatory-compliance/zero-knowledge-proofs-for-regulated-financial-institutions-do-the-risks-outweigh-the-rewards->

²² “JPMC Kinexys Project Epic Whitepaper 2024,” J.P. Morgan, available at <https://www.jpmorgan.com/kinexys/documents/JPMC-Kinexys-Project-Epic-Whitepaper-2024.pdf>

	meets regulatory requirements, but this could take a number of years.
Permissioning and Control	
<p>The Canton Network’s permissioning is defined at the smart contract level. This provides control around who can validate processes and smart contracts, instruct transactions, and connect to apps.</p> <p>Daml and Canton are open source, so anyone can create applications and define the level of permissioning and privacy they require for their use case. It is possible to define at the smart contract level who can do what across the whole hierarchy of a network. However, Canton has no single centralized governance or policies for access and usage. Instead, each constituent network sets its own policies. This allows application operators to apply controls that meet regulatory requirements for application operators. The ability to restrict access to smart contracts contrasts with Ethereum’s open access model, reducing the risk of hackers accessing smart contracts, or buggy code that has not been properly audited.</p> <p>Canton transactions are not validated by a universal group of validators; only those party to the transaction can validate. This differs from Ethereum, where validators may not be a party to the transaction and it can be hard to tell who has validated. However, if desired, participants in the Canton Network can choose a more decentralized form of validation across the whole network but they would still know the identity of these validators. All of this makes</p>	<p>Ethereum is a truly open network on which anyone can transact in a pseudo-anonymous way. Similarly, anyone can validate transactions as long as they possess the minimum stake of 32 Ether. This creates major problems around KYC and AML and is one of the reasons that regulators apply a punitive 1,250% risk weighting to assets on permissionless networks for traditional financial institutions.</p> <p>The forthcoming BIS SC60 regulation that comes into force in Jan 2026 focuses on who has access to a network, whether members are regulated entities, who can see transactions, network stability, and the capacity to meet AML requirements.²³ Tokenized assets held on public permissionless networks like Ethereum would fall under the rule, making it difficult for regulated institutions to use Ethereum for trading and settlement.</p> <p>New token standards, such as ERC-3643 for Ethereum, may enable transaction permissioning at the asset level. They have the potential to allow only users meeting certain conditions to become token holders on permissionless chains.²⁴ This could support the tokenization of real-world assets and help to address issues around AML and KYC on public permissionless chains. This is a relatively new development.</p>

²³ “Scope and definitions SCO60 Cryptoasset exposures,” Basel Committee on Banking Supervision, 17 July, 2024, available at https://www.bis.org/basel_framework/chapter/SCO/60.htm?inforce=20260101&published=20240717

²⁴ “Exploring ERC-3643 — The Standard Redefining RWA Tokenization,” The Medium, May 6, 2024, available at <https://medium.com/@lancelot.salavert/exploring-erc-3643-the-standard-redefining-rwa-tokenization-df16603db0cd>



<p>Canton’s approach to permissioning and control much more suited to the needs of regulated institutions than the more open and anonymous Ethereum network.</p>	<p>All smart contracts on the Ethereum public blockchain are also public, open source and anyone can access them. This means hackers can see the source code of DeFi smart contracts and identify any vulnerabilities. Smart contracts rely heavily on the accuracy of their code and the security of the blockchain infrastructure they run on. Even small errors or omissions can result in serious issues like unauthorized access, misappropriation of funds or unintended legal conflicts. It can also be hard to tell whose smart contract code has been validated or audited by a third party. As a result, smart contract risk remains a key issue with public permissionless blockchain networks.</p>
<p>Network Governance</p>	
<p>Governance of the Canton Network is somewhat decentralized, but the Linux Foundation and industry stakeholders provide a level of open, neutral governance. Market participants, network providers and financial market infrastructures (FMIs) can play a role in the evolution of the network, satisfying regulators’ need for control. It remains to be seen if the firms backing Canton can play nicely when it comes to its evolution. The underlying DLT networks also have independence over their own governance. The code the network is built upon is open source, with the Linux Foundation providing governance over this. The Linux Foundation also coordinates the governance of the Global Synchronizer, which forms the interoperability backbone of the network.</p> <p>The Canton ledger is immutable. However, according to Digital Asset, if something goes wrong with a smart contract, there is</p>	<p>Governance in Ethereum is very decentralized in theory, although recent research suggests there may be some concentration among decision makers that influence its direction.²⁶ Ethereum’s roadmap is largely shaped by a combination of community discussions, developer input and leadership from core figures. The implication is that regulated financial firms would have a limited say in how the network evolves. The Ethereum Foundation, a non-profit organization, plays a central role in guiding the protocol’s development, with Vitalik Buterin, its co-founder, being an influential figure. However, the Foundation does not have direct control over Ethereum’s governance. Major changes involve a “hard fork” of the chain. If there is no consensus on this among the Ethereum community, then participants can stay on the old path or choose to move to the new one.</p>

²⁶ “Data-Driven Financial Decisions: A New Frontier,” SSRN, January 23, 2024, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4691000

<p>technically an ability to execute secure rollbacks if required. This is done in a controlled way and maintains ledger state accurately across all participants, with consistency guarantees. The ability to roll back a smart contract would be useful in the event of a serious hack or major loss due to errors or bugs. This is much more difficult in Ethereum, although a hard fork has been carried out in response to a large-scale hack in the past.²⁵</p>	<p>When it comes to user support or customer service if something goes wrong, there is no one to call and very little recourse to recover funds lost through fraud or hacks. No individual party has control over the processing of a transaction, overall running of the system or its code. It is also impossible to stop or reverse a smart contract transaction in the event of errors, bugs or hacks. Regulators in the TradFi industry are clear in their guidance that this model of governance and control is not palatable for market infrastructures.</p>
<p>Resilience</p>	
<p>Digital Asset points out that resilience has held up well during large-scale pilots with regulated financial institutions. It claims that the Canton Network synchronizer protocol offers high availability, parallel processing and horizontal scalability features. Its decentralized nature, with 13 different institutions running it at launch, also helps to support resilience.</p> <p>The Global Synchronizer infrastructure has been live since July 2024, providing a limited timespan to assess its resilience in production and during periods of market volatility compared with Ethereum. However, the underlying applications and networks, including Broadridge DLR, Versana, and Goldman Sachs’ Digital Asset Platform, have been built on Digital Asset’s protocol, and have</p>	<p>The Ethereum network has not experienced a major outage since its launch in 2015. However, in May 2023 Ethereum suffered a delayed finality event.²⁷ This was caused by a bug in the software that some validators use to validate blocks. Because this impacted more than 33% of validator nodes, Ethereum was unable to achieve settlement finality, as the network requires consensus of more than two thirds of validators to finalize each new block on the chain. The issue was addressed and finality continued after a few hours. This issue raises the thorny question of potential concentration risks related to the software validators use to validate transactions. For example, a bug in client software such as Geth, which is used by a larger number of validators, could have had a more significant impact.²⁸</p>

²⁵ “CoinDesk Turns 10: How the DAO Hack Changed Ethereum and Crypto,” CoinDesk, May 9, 2023, available at <https://www.coindesk.com/consensus-magazine/2023/05/09/coindesk-turns-10-how-the-dao-hack-changed-ethereum-and-crypto/>

²⁷ “Ethereum’s Loss of Finality: What Happened?” CoinDesk, May 17, 2023, available at <https://www.coindesk.com/tech/2023/05/17/ethereums-loss-of-finality-what-happened/>

²⁸ “Bug on Ethereum’s Nethermind Software Sparks Discussion of Client Diversity Risks,” CoinDesk, January 22, 2024, available at <https://www.coindesk.com/tech/2024/01/22/bug-on-ethereums-nethermind-software-sparks-discussion-of-client-diversity-risks/>



<p>been used by live clients in production for several years.</p>	<p>Due to Ethereum’s distributed nature and large user base, information on bugs or cyberattacks is rapidly shared among the developer community. This has generally minimized outages and downtime. Traditional financial market infrastructure is of course susceptible to outages. However, Ethereum’s public network would flatly not satisfy regulatory requirements operational resilience such as the CPSS/IOSCO Principles for Financial Market Infrastructures.²⁹</p>
<p>Scalability</p>	
<p>Canton primarily scales at the underlying network level. Network operators can add nodes and servers as required to handle the need for increasing volume and throughput. Because the network is not a fully replicated blockchain with each node having a full copy of the whole chain, this also reduces the need for computing capacity as the network grows. Canton’s website says that the protocol has no upper bound on how many transactions per second it can process, and it can be scaled to achieve any transaction processing speed.³⁰</p> <p>At time of writing, the Canton Network’s Global Synchronizer is not yet processing very high volumes of transactions in real-world production involving a large number of network participants. However, Canton points out that the network has been scalable enough to handle pilots involving significant numbers of</p>	<p>Scalability is the Achilles’ heel of the Ethereum network, which was originally designed to favor decentralization and security rather than scalability. Because the hardware requirements to act as a validator are low, a large number of individuals can participate. But that comes at the expense of speed and scalability. Ethereum can currently only process around 15 transactions per second.³¹ This compares with Visa’s ability to process 65,000+ transactions per second.³² It is not suitable for widespread institutional grade settlement.</p> <p>Layer 2 chains built on top of Ethereum can process transactions off the main L1 chain, reducing the computational load on it. But they are then ultimately rolled up for settlement on L1 to ensure the same immutability and security benefits as the L1 chain. This can</p>

²⁹ “Principles for financial market infrastructures,” Bank for International Settlements (BIS), April 2012, available at <https://www.bis.org/cpmi/publ/d101a.pdf>

³⁰ “The Canton blockchain protocol,” Canton Network, available at <https://www.canton.network/protocol>

³¹ “Solana vs. Ethereum: Investor’s Guide 2024,” CoinLedger, available at <https://coinaldger.io/tools/solana-vs-ethereum>

³² “Visa Fact Sheet,” Visa, available at <https://www.visa.co.uk/dam/VCOM/download/corporate/media/visanet-technology/aboutvisafactsheet.pdf>



<p>participants. The underlying networks, which use Digital Asset’s protocol, have a longer track record in higher volume production deployments.</p>	<p>create challenges due to a lack of interoperability between different L2 networks and a need to maintain security standards. Ethereum’s development roadmap seeks to address these interoperability issues and improve Ethereum’s scalability to >100,000 transactions per second, while reducing transaction costs. However, this will take time to fully resolve.³³</p>
<p>Cost</p>	
<p>Applications on the Canton Network are not forced to use its native utility token to pay for transactions. Subnets on the Canton Network are operated by independent service providers who can set their own fees for the use of their applications. Separately, and only if used, traffic fees for the Global Synchronizer are charged in the form of \$USD per megabyte (MB) of transaction traffic. Parties that submit transactions via the Global Synchronizer can pay those fees by either purchasing bandwidth with fiat currency or using Canton Coin. The Global Synchronizer and Canton Coin’s "burn-mint equilibrium" mechanism is designed to support price stability and predictability for users and avoid spikes in fees.</p>	<p>Transaction fees in Ethereum can vary widely depending on volumes at any given time. Fees are interconnected, with increased usage in one application raising costs for all users. For example, average gas fees in 2023 were over \$7. This reached an average of \$40 a transaction during November 2021 with some transactions costing hundreds of dollars.³⁴ These costs and the level of volatility in fees are off-putting for traditional financial services firms. Ethereum also has cost reduction as part of its future roadmap.</p>
<p>Security</p>	
<p>Digital Asset’s security documentation states that it has a full-time chief information security officer (CISO) and security team that operates its InfoSec Program, covering all aspects of physical, logical, data and technology security. Canton has also achieved ISO27001 certification and undergone SOC2 Type II assessment.³⁵ Canton sees this as a</p>	<p>Ethereum’s decentralization is a key factor in its security. There is no single central node operator like those that exist in traditional financial markets infrastructure. The nature of its consensus mechanism and staking protocol, as well as the large number of validators on the network, mean a malicious actor would need to stake tens of billions of</p>

³³ “Ethereum Roadmap: Danksharding,” Ethereum Foundation, July 24, 2024, available at <https://ethereum.org/en/roadmap/danksharding/>

³⁴ “Understanding Ethereum’s Layer 1 and Layer 2: Differences, Adoption, and Drawbacks,” Wilson Center, October 13, 2023, available at <https://www.wilsoncenter.org/article/understanding-ethereums-layer-1-and-layer-2-differences-adoption-and-drawbacks>

³⁵ “Digital Asset Trust Center,” Digital Asset, available at <https://www.digitalasset.com/trust-center>



<p>differentiator between it and other providers in this space, and this level of external certification and auditing is similar to the approaches market infrastructure providers in TradFi typically take to support security.</p>	<p>dollars at current prices to manipulate the ledger with the potential to lose the entire stake.</p> <p>However, Ethereum still has a range of potential security vulnerabilities. Users lost \$1.35 billion due to hacks, scams and security exploits in 2023, according to research by security app De.Fi.³⁶ Ethereum’s profile as the largest ecosystem with the most active users makes it a prime target for bad actors. L2 rollups and cross chain bridges between Ethereum L1 and L2 operators create an attack surface that hackers can exploit. Oracle manipulation attacks are another form of risk. Oracles provide a way to source data from the outside world for smart contracts, including reference and market data.</p>
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³⁶“Crypto Users Lost \$2B to Hacks, Scams and Exploits in 2023: DeFi Says,” CoinDesk, March 8, 2024, available at <https://www.coindesk.com/tech/2023/12/27/crypto-users-lost-2b-to-hacks-scams-and-exploits-in-2023-defi-says>



Getting Ready for Implementation

Key Points:

- *As DLT networks and tokenized assets gather pace, market participants should have a strategy to adapt and maximize opportunities.*
- *As well as prioritizing business problems to solve and making a clear business case, the DLT strategy should take people, process and technology factors into consideration.*
- *While measurable financial benefits are important, firms should also consider first-mover advantages, the ability to capture market share, and playing a role in setting standards as an early adopter when defining the business case for DLT.*

One of the market participants we spoke with suggested that while the Canton Network has the potential to improve interoperability, there could be concerns among incumbent financial institutions and FMIs that Digital Asset may eventually begin to compete with them on market infrastructure and other areas. As such, they thought some market participants may see Ethereum as a safer choice, albeit with ongoing shortcomings for regulated financial services. Indeed, some of the private blockchains used by large industry players have been developed to be compatible with Ethereum's Virtual Machine (EVM), although to date these have faced the same interoperability challenges as other private networks. Financial institutions also think it is worth keeping an eye on Ethereum to keep pace with innovation and talent in the DeFi world, which can be more dynamic than in the regulated finance world.

Digital Asset however, says that its role is only as a technology provider for the Canton Network, not a provider of financial services or market infrastructure. It points out that the Canton Network operates like a public network, with infrastructure that is decentrally run and transparently governed, and where firms

and FMIs can deliver and connect their solutions and services. Digital Asset therefore says it will not directly compete with any FMI.

Whether based on Canton or Ethereum, there will most likely be multiple network of networks in the future rather than one network to rule them all. The Canton Network currently enables on-chain atomic interoperability without the use of bridges between applications and DLT networks written using its Daml smart contract language. Just as with Ethereum or its EVM-compatible variants, institutions that want interoperability between networks built on different protocols still need to use bridges. Digital Asset says it is experimenting with technical solutions that make it possible to support additional smart contract languages, including Solidity to enhance compatibility and support for EVM. Overall, the market highlights that it may be undesirable to have one dominant ledger anyway due to concentration risks and monopolies developing.

In this world of multiple unified ledgers, liquidity would still end up fragmented across multiple networks of networks, though these will be larger than the current walled gardens. This will leave each individual firm with a need to consolidate data and workflows, which in our view is a role that the Canton Network could deliver well.

One market participant we spoke with speculated that while Canton has gained significant institutional involvement in various pilots, this may be because firms see it as a quick way to connect and dip their toe in the water rather than viewing Canton as the “forever stack”. Ultimately the market may just migrate towards the cheapest, most liquid network. This could end up being Ethereum due to its scale, interoperability and pace of innovation.

While many aspects of the Ethereum public network currently preclude it from use by regulated financial firms, this may change as its roadmap evolves and robust

technological solutions to address issues with privacy and control reach maturity. But it remains to be seen whether regulators will ever be comfortable enough with the level of decentralization Ethereum offers for it to underpin settlement in traditional financial markets. It is more likely that private permissioned Ethereum platforms will be the only way for Ethereum to gain regulatory approvals.

Somewhere the question must still be answered whether DLT solutions are solving existing problems in capital markets settlement and post-trade. If that can be proven, then the conversation turns to which technology is better, otherwise it's a planning exercise with no end goal. Factors that are inhibiting wider adoption include the costs and operational complexity of running existing legacy infrastructure in parallel with DLT for many years to come. Financial actors are also competing for access to internal technology, legal and compliance expertise needed to make the transition. Competing investment priorities such as artificial intelligence (AI) that have a quicker time to value are taking up more senior management attention. The market is answering the question of how much change market participants can realistically absorb in a move to a completely new infrastructure.

Despite these challenges, there is growing momentum behind tokenization (including CBDCs), evolving regulatory frameworks, increasing buy-side involvement and ongoing moves from FMIs to transition to a DLT infrastructure. If Canton has truly solved the trade-off between interoperability, privacy and control, then this is an important step that could influence the business case for firms investing in DLT. However, solving interoperability between DLT networks is still one piece of a large and complex puzzle.

A Strategic Approach to DLT

The real payback from DLT is some years away in the future, as it will take time for the market to move away from current infrastructure and for network effects to come into play. The timeline for widespread adoption is uncertain, which makes it harder to define a business case for DLT projects. However, there are opportunities to start small by identifying discrete business problems to solve using DLT with quantifiable benefits that can provide quick wins.

There are also long-term strategic benefits to take into account. These can include first-mover advantages such as the ability to capture market share and play a role in governance and standard setting for DLT market infrastructure. DLT could change the basis of competition in each industry sector, and firms will need to counter threats to revenue streams and existing business models.

The checklist below provides action items that may help decision makers define their approach to adoption, focusing on the core areas of people, process and technology.

Checklist for Creating a DLT Strategy

People

1. Educate decision-makers, gain senior-level buy-in and appoint an internal business champion.
2. Engage in a conversation with providers of DLT platforms such as fintechs and FMIs on their roadmap, pricing models and how to onboard to their solutions.

3. Consider the benefits of partnerships with blockchain firms, or participation in industry consortia that can help to mutualize the costs of investment and build valuable knowledge.
4. Identify internal resourcing requirements and the technical expertise required for DLT.
5. Determine the need for involvement from legal, risk, and compliance teams and engage with them in the early stages of any DLT project.

Process

1. Determine a clear method for evaluating the cost savings, efficiency gains and other benefits from pilots.
2. Question whether DLT solves a given business problem more effectively than current infrastructure.
3. Consider how DLT could help to reimagine processes and workflows rather than just replicating current processes more efficiently.
4. Develop capabilities to handle and trade tokenized assets and stablecoins.
5. Closely monitor regulatory developments around DLT and tokenized assets.

Technology

1. Experiment with the sandboxes and off-the-shelf DLT and digital securities platforms provided by fintechs, FMIs and regulators.

2. Understand the impact of blockchain and DLT on your firm's technical architecture and roadmap.
3. Assess the cybersecurity and data privacy risks of both DLT and greater interoperability between DLT platforms before implementing.
4. Consider risks around smart contracts and network vulnerabilities.
5. Understand the implications of running DLT-based solutions in parallel with legacy platforms for some years into the future.

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