

Capital Markets Innovation: Accounting for the DASCP Framework

Catalyst Blockchain Manager simplifies the adoption of the DASCP Framework, delivering scalable, secure, and resilient solutions. Its modular infrastructure and advanced event monitoring ensure compliance with industry standards, enabling organizations to unlock the potential of digital asset securities and build a resilient, efficient ecosystem.



Jonathan Mayeur, Head of Product

In May, Euroclear, DTCC, and Clearstream released <u>'Building the Digital Asset Securities Ecosystem</u>," demonstrating a strong commitment to fostering alignment among financial institutions on digital asset securities. We were pleased to see this publication prominently featured in discussions at industry events this year, culminating in a compelling roundtable at Sibos in October.

A key challenge for financial institutions adopting digital asset securities is the lack of a formal framework. While the Digital Assets Securities Control Principles (DASCP) Framework is not a fixed rulebook, it establishes a foundation for comprehensive industry standards. Guidelines for the development and governance of DLTbased securities will enable the industry to bridge the gap between the present-day reality and the potential of digital Various risk prevention and mitigation controls within the DASCP Framework have been the preoccupation of early adopters of digital assets for some time. Catalyst Blockchain Manager was designed for DLT-based solution enablement, serving many of these now better-defined needs.

As an infrastructure management solution, Catalyst provides accelerated deployment, streamlined blockchain application management, and full enterprise readiness – enabling organizations to focus on creating business value with distributed ledger technologies.

We believe that Catalyst can play an important role in enabling a Digital Asset Securities (DAS) ecosystem by streamlining innovation, implementation, and scaling

assets securities as drivers of efficiency, security, and untapped value. adoption of the DASCP Framework.

The DASCP Framework The Six Principles

The whitepaper begins by outlining six principles required to build a resilient, compliant, and efficient DAS ecosystem. The principles are:





These principles form the backbone of the DASCP Framework, a layered methodology ensuring the effective functioning of the DAS lifecycle. To safeguard these principles, the framework identifies potential risks that could jeopardize their implementation. It then outlines specific controls to mitigate these risks effectively.

The DAS Controls are broken into four categories:



How Catalyst Blockchain Manager accounts for the DASCP Framework

Catalyst empowers enterprises to focus on value creation rather than wrestling with the underlying blockchain or distributed ledger technology. Our platform accounts for a variety of the DAS control principles, supporting their implementation either in part or to the letter.

Below we lay out various DASCP Controls and how Catalyst facilitates them. They are grouped by the underlying Principle.

Operational Scalability

A functioning DAS ecosystem must drive efficiency and cost-effectiveness for participants through standardized roles and smart contract functions that can sufficiently accommodate market growth. The scalability of the DLT application network is a critical consideration. The DASCP Framework aims to tackle this through robust definitions of functions and behaviors within the DAS system.

Conform to a common set of functions, behaviors, and service level agreements that support various security life cycle operations such as issuance and settlement.



Control 24-S Functions / Behaviors

Catalyst Blockchain Manager directly supports this control by addressing risks related to scalability and participant onboarding:



1

Modular Infrastructure Design

Catalyst's modular design allows individual components to be updated or scaled independently, ensuring flexibility and minimizing disruptions. This reduces downtime during upgrades, simplifies maintenance, and provides a scalable, adaptable foundation for growing DAS ecosystems.





Scalable Solutions Development

Catalyst is designed with ease of scalability at its heart. Whether organizations need to increase resources by adding components, or they need to onboard new participants, Catalyst's streamlined console and automation make such tasks as simple as a box filling exercise.



Dual Scalability

Catalyst takes a comprehensive approach to scalability: for DLT solutions to be successfully employed in securities lifecycle processes, they need both technical and functional scalability.

- Technical Scalability: ensures the system's components and resources can grow to meet increasing demands.
- Functional Scalability: simplifies onboarding processes and supports the expansion of business operations.

2 Resilience & Security

To maintain the high level of confidence currently held by financial market infrastructures, a DAS ecosystem must be resistant to disruptions, ensure continuous operations, and guarantee the protection of sensitive data. The DASCP Framework proposes a list of Controls aimed at achieving this resilience and security.

Implement a robust event monitoring system that audits operations continuously.



Control 35-R Event Monitoring and Alerts

Catalyst Blockchain Manager is designed to detect if components or the network itself are down and alert the support team automatically. Catalyst's installation includes templates to assist with monitoring, leveraging widely used monitoring stacks such as Grafana and Prometheus.

Users can monitor and consolidate alerts from distinct networks deployed on Catalyst using their existing monitoring systems. Catalyst collects infrastructure metrics exposed by components and compiles them into a dashboard. This includes important information such as uptime, latency and resource usage.

Develop and maintain technology resilience capabilities to ensure continuous service.

Control 36-R Redundancy and Concurrency



Catalyst provides redundancy through high availability deployments, ensuring DLT systems, components, and applications can operate at a high level, continuously, delivering quality performance and handling different loads with minimal or zero downtime.

While redundancy depends largely on the chosen blockchain protocol, with each protocol offering its own approach, Catalyst supports various strategies to enable high availability across all supported protocols.

Regularly record and store copies of the ledger and service-related data to prevent loss of data integrity or availability due to destruction or corruption of data.



Control 37-R Backup

Catalyst includes robust backup and recovery features that cover both network components and data. For instance, with Catalyst for Canton, snapshots of component data are created every four days, enabling users to restore their network to a previous state in case of an incident. The snapshot frequency can be adjusted to meet specific user requirements. Catalyst also supports backup and recovery for network or node configurations and ledger identities.

Distribute operational data across multiple geographic locations while adhering to regulatory requirements, to reduce the risk of regional disruptions.



Control 43-R Geographical Distribution

Catalyst is compatible with geographical distribution strategies. Users can leverage global load balancing and database replication across regions, intelligently routing traffic based on factors like latency and regional

availability, ensuring real-time data synchronization, optimal performance, seamless failover, and high availability.

3 Safeguarding Customer Assets

The digital asset ecosystem must be designed to ensure that customer assets are managed and protected with the same level of assurance as legacy financial market infrastructure. Foolproof smart contract governance is critical. The DASCP Framework addresses this requirement from multiple perspectives.

Restrict access to smart contract data and functions based on standard roles using fine-grain entitlements.



Control 19-S Smart Contract Entitlements



Catalyst facilitates this control through role-based access management and integration with ID authentication providers, enabling users to safeguard customer assets with robust smart contract governance.



Role-based Access Control

Catalyst secures smart contracts through robust role-based access controls. This ensures that participants only have access to data and rights appropriate for their roles within the network, effectively preventing unauthorized actions, data breaches, and misuse of smart contract functions.



Configurable ID Authentication Endpoints

Catalyst provides a flexible ID Authentication framework. By enabling configurable endpoints for authorization, token exchange, and user information retrieval, Catalyst allows seamless integration with a wide range of identity providers. This flexibility futureproofs customer solutions by supporting evolving authentication requirements without demanding major system overhauls.

Implement a quantum-resistant signature algorithm, and a periodic audit process for reviewing and documenting quantum-resistant algorithms.

Control 20-S Quantum-Resistant Signature Algorithms

Our team is actively researching quantum-resistant cryptographic methods to futureproof our platform against advancements in quantum computing. Although this is more of a protocol-dependent consideration, Catalyst already supports a quantum-resistant version of Hyperledger Fabric developed by the IntellectEU quantum research team.

Catalyst's commitment to research and innovation ensures that the platform not only addresses present-day requirements but also anticipates and mitigates future threats, safeguarding customer assets in an evolving technological landscape.

How Catalyst facilitates industry adoption of the DASCP Framework

The demand for secure, scalable, and compliant digital asset solutions will only grow as financial services evolve. Catalyst Blockchain Manager stands at the forefront of innovation, aligning with the core principles of the DASCP Framework.

By simplifying implementation, enhancing operational efficiency, and safeguarding critical assets, Catalyst empowers organizations to adopt DAS systems with confidence. As we continue to evolve alongside industry demands, our commitment remains steadfast: to enable a resilient, interoperable, and forward-thinking ecosystem that drives adoption at scale.

If you are interested in discussing this topic further, reach out to us at:

<u>catalyst-product@intellecteu.com</u> jonathan.mayeur@intellecteu.com

Authors: Jonathan Mayeur, Antonio Matos, and Mark Swift