BUILDING A MODERN AND SCALABLE CORPORATE ACTIONS ENGINE POWERED BY A DISTRIBUTED EVENT STREAMING PLATFORM
Synopsis – Event Streaming platforms & technologies will benefit asset servicing firms by accelerating digital transformation period, reduce integration complexities in their ecosystem by utilizing simple pub/sub messaging architecture and adopting an enterprise-wide event driven architecture across entire organization.

Corporate actions processing involves a wide range of intermediaries (Registrar, Agents, CSDs, ICSDs, broker/dealers, custodian, fund managers) that operate between an issuer and shareholder. Software providers who implement corporate actions platforms at these intermediaries (such as local and global custodians in securities services industries, broker/dealers in corporate and investment banks) need to have a robust integration framework to acquire and process the data (client and account information, securities data, positions, trades, tax and forex rates) required for efficiently processing the corporate action. This data, historically (and to date), has been stored mostly in applications developed on aging technology and integration architectures.

The most common cause for failure to implement a corporate actions solution has been its integration with legacy partner systems (such as client data, assets, position keeping and accounting – both cash and stock). The business impact is enormous considering that the securities / asset servicing firms cannot provide efficient, best-in-class corporate actions processing services to their end customers despite having a modern in-house or vendor sourced corporate actions solution. The legacy integration architecture becomes an Achille’s heel in their ecosystem.

There have been significant investments made by the financial services industry to reduce the risks associated with the processing of corporate actions and in achieving high STP rates via the adoption of standardized messaging such as ISO 15022 and, more recently, ISO 20022. However, the investment needed to modernize these legacy applications...
to reap the benefits of available technologies has been low to moderate. The current crop of corporate actions platforms that can seamlessly integrate with downstream or upstream partner systems (mostly legacy platforms that were built decades back in Mainframes) use traditional Point-to-Point architecture. While this architecture has some advantages, it comes with drawbacks related to scalability, tight coupling and time-consuming maintenance and upgrades.

With the evolution in integration architectures and the availability of modern, scalable platforms based on real-time event streaming, API based

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**Figure 1**: Key partner systems holding processing data in a Corporate Actions Ecosystem

**Figure 2**: A Representative Integration Landscape of a Corporate Actions platform in an Asset Servicing Firm
integration and similar technologies, these corporate actions platforms along with the entire ecosystem of asset servicing organizations now have the right set of tools /ammunition to handle complexities and expedite the modernization of their legacy applications.

“Distributed Event Streaming Platforms (ESP)” now allow for modernization to happen at lightning speed. These platforms model their architecture on pub-sub messaging and asynchronous service-to-service communication used in serverless and microservices architectures. They are highly scalable, distributed, durable and fault-tolerant event streaming platforms and are now widely used across industries for data integration, from manufacturing to banking to insurance and telecommunications.

The unique capability of Distributed Event Streaming Platforms is their ability to support multiple types of integration architectures such as:

a) Queuing (Point-to-Point) – Traditional Architecture
b) Publish-Subscribe (Pub/Sub) – Modern Architecture

Using Distributed Event Streaming Platforms, corporate actions solution providers do not have to worry about the challenges of integrating with

Figure 3: Representation of Corporate Actions data flow using an Event Streaming Platform

Some of the well-known benefits of Distributed Event Streaming Platforms are outlined under Fig 3.

Figure 3: Benefits of Event Streaming Platforms
Building a Modern and Scalable Corporate Actions Engine powered by Distributed Event Streaming Platform

multiple downstream systems of similar kinds. For example, it has been seen that many large asset servicing firms, especially custodians, maintain multiple position keeping systems. Without an integration layer in between corporate actions platforms and legacy partner systems, in most of the cases, the onus is on the corporate actions solution provider to integrate multiple position keeping systems, first connecting via different protocols (MQ, NDM) and then publishing and receiving data in multiple formats (flat file, CSV, XML, JSON etc.).

Distributed Event Streaming Platforms address the above challenge through a “Publisher-Subscriber Architecture” allowing corporate actions platforms to broadcast real time data continuously and synchronously to multiple consumers.

Traditional Integration Model for Corporate Actions platforms: P2P with Legacy systems

The diagram below provides an overview of the traditional exchange of asset servicing data by a data vendor providing a corporate actions platform and a data consumer like an asset servicing firm. The traditional method of one-to-one interaction is via legacy protocols such as NDM, FTP, MQ and formats such as CSV, FILE, etc.

Modern Integration Model for Corporate Actions platforms via Distributed Event Streaming Platforms – Pub Sub Architecture.

In the diagram below, the data exchange between producer/publisher and consumer/subscriber is modelled on a pub-sub architecture, which enables the movement of messages between different components of the system without these components being aware of each other’s identity.
Having said that, it is important to understand that the path to modernizing the integration landscape may not happen with a big-bang approach given that there are known technology limitations of legacy systems within asset servicing firms for direct integration with Distributed Event Streaming Platforms. To solve this problem, one must carefully review the capability of each legacy system and decide the right path forward. Based on legacy system capabilities, one can envisage three paths for integration:

1. The Traditional Path – P2P Connectivity – For those legacy systems who are unable to connect to the Distributed Event Streaming Platforms due to technology limitations, the data will be published in the legacy format and protocol.

2. The Tactical Path – For those legacy systems who can remove some of their technology limitations but would need some sort of transformation layer in between, Distributed Event Streaming Platforms can transform the data in various formats, such as File, CSV, XML and protocols such as NDM, FTP, MQ.

3. The Strategic Path – For the new-age partner systems, which unlike legacy partner systems, do not have technology limitations allowing them to be quickly onboarded to Distributed Event Streaming Platforms.

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