Use case brief

Transactional processing

Introduction

Developers often think of database transactions as the primary type of transaction. However, other non-atomic and non-technical transactions also exist in most businesses. These transactions can have varying durations and require appropriate technology and design for effective management. At AxonIQ, we help customers deal with complex business transactions through our tools and expertise. Below, we'll showcase how AxonIQ solutions serve as invaluable and powerful tools for managing business transactions.

Use case deployments

Finance

A bank is an excellent example of an institution that requires transactional and distributed information systems to support and automate its business processes. A payment process involves many steps and many parties. First, you initiate the transaction and debit one account. Next, you finish the transaction and credit the second account. From a technical perspective, implementing this as one transaction is difficult or even error-prone, especially when dealing with different banks and database technologies.

However, from a business perspective, there is only one transaction that needs to be consistent within the distributed environment. By aggregating all steps of the process into one business transaction, we guarantee that both accounts are either credited/debited successfully or both return to their previous state.

Retail

In the retail domain, a transactional processing system typically consists of various components. These include a point-of-sale (POS) system that captures sales transactions, a customer relationship management (CRM) system that records customer interactions, a trading system that facilitates transactions between buyers and sellers, and an accounting system that maintains the journal and books for financial transactions.
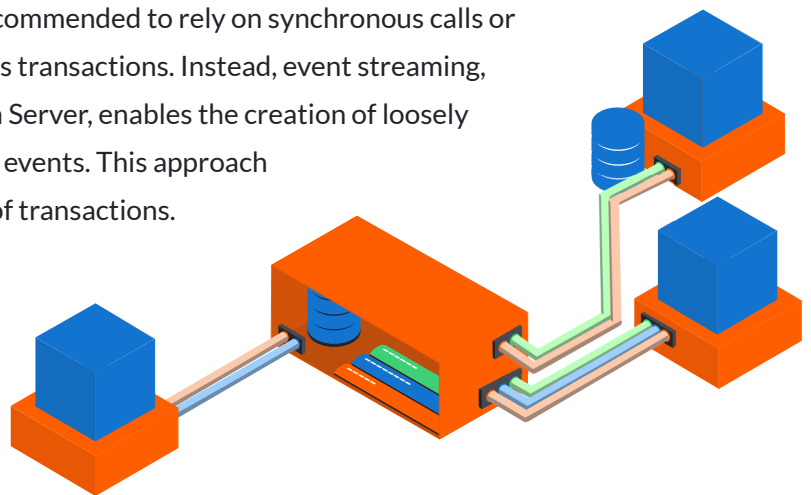
Other domains

Transactions are not limited to the banking and retail industries alone. Numerous other domains also require efficient transaction management. For instance, the government, customer on-boarding processes, know-your-customer (KYC) procedures, internal payments, and cryptocurrency rely on efficient transactions.

Axon values for transactional processing

AxonIQ simplifies the design, development, and operation of Domain-Driven Design (DDD), Command Query Responsibility Separation (CQRS), and event-sourcing-based applications by providing purpose-built tools, frameworks, platforms, and infrastructure. These solutions enable customers to solve complex problems effectively.

To avoid tightly coupled systems, it is not recommended to rely on synchronous calls or overnight batch jobs for non-atomic business transactions. Instead, event streaming, facilitated by a reliable event store like Axon Server, enables the creation of loosely coupled systems that communicate through events. This approach ensures efficient handling of a high volume of transactions.

When managing a business transaction, you're not just dealing with events; you're also retrieving information and executing tasks. This requires queries and commands, in addition to events. These three types of messages can fulfil all communication requirements. Axon Server's message routing capabilities allow seamless message exchange between services without location-aware applications or implementing separate service discovery mechanisms.

It's important to have the ability to trace and understand the actions, timing, and outcomes of your transactions. AxonIQ offers an ideal solution: converting events into a single source of truth using event sourcing. By adding a small amount of metadata, these events effortlessly meet auditing and compliance needs – providing a comprehensive and trustworthy record of what transpired.

When implementing the concepts mentioned above in your applications, it's important to consider the most efficient approach. While reinventing the wheel is an option, leveraging existing solutions is a better choice.

Axon Framework is a comprehensive tool that has been developed over the years to support event streaming, event sourcing, microservice messaging, process management, and the modelling of applications using Domain-Driven Design (DDD). By embracing Axon Framework, you can meet all your technical requirements by leveraging the collective experience and development time condensed into this powerful framework. This allows you to shift your focus towards building business value, while Axon takes care of the technical complexities.

The benefits of choosing AxonIQ

Discover the advantages of our products and services:

- Auditability and traceability

- Simplified enterprise infrastructure with Axon Server

- Flexibility to future-proof your business

- Seamless scalability

- Data protection and disaster recovery

- Reduced maintenance costs and future potential

- Enhanced process transparency

- Streamlined payment process

- Consolidation of tools

Resources

- Axoniq.io

- Axon Server

- Axon Framework

- AxonIQ Console

- AxonIQ Subscriptions