

Modernizing Customer Lifecycle Management

Transforming AML, Fraud Detection, and Sanctions Screening
with MongoDB

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Abstract

Customer lifecycle management (CLM) handles customer relationships through every lifecycle stage. With current CLM applications built on rigid relational database management systems (RDBMS), responding to business needs in an ever-changing regulatory environment has become challenging.

To achieve a shorter time to market, most organizations have developed band-aids that lead to technology sprawl and development team silos. Such siloed teams decrease feature velocity, are expensive to operate, and increase the operational overhead. All of these challenges not only result in a terrible customer experience but also expose businesses to regulatory compliance risks.

With MongoDB as the world's leading developer data platform, financial institutions can unlock this gridlock to reduce the time-to-market for their CLM applications by:

- Speeding up software development with the flexibility and versatility of the document model
- Consolidating diverse data into a single view without slowing down innovation
- Scaling dynamically to handle changing business priorities seamlessly
- Reducing the operational overhead from managing multiple workload-specific technologies, saving TCO, and reducing operational and security risk

Introduction

Customer lifecycle management (CLM) is the process of onboarding and tracking customer relationships through all life cycle stages. These stages include inception to customer monitoring and control to customer offboarding. CLM teams build and manage many IT applications to handle customer due diligence and regulatory compliance through the life cycle stages; examples of applications include, Know Your Customer (KYC), AML, and Suspicious Activity Reporting.

Financial institutions lacking due diligence and regulatory compliance controls were fined \$2.7 billion in 2021, according to the AML fines report. Today, [organizations continue to face fines](#), despite increased spending on technology, systems, and people. This is not limited to traditional financial institutions but also emerging crypto companies with over US \$3t in market capitalization last year faced similar challenges. Their ever-changing nature makes these controls difficult to implement for both financial sectors.

With current CLM banking applications running primarily on RDBMS, adapting to new compliance regulations is expensive and slow. Rigid schemas, such as those required by RDBMS, slow down the necessary change processes. As applications built on RDBMS are visualized in figure 1, development teams complete change requests (#of JIRAs) on time in the beginning. But, they fail to deliver business change requests as data workload and business complexity increase.

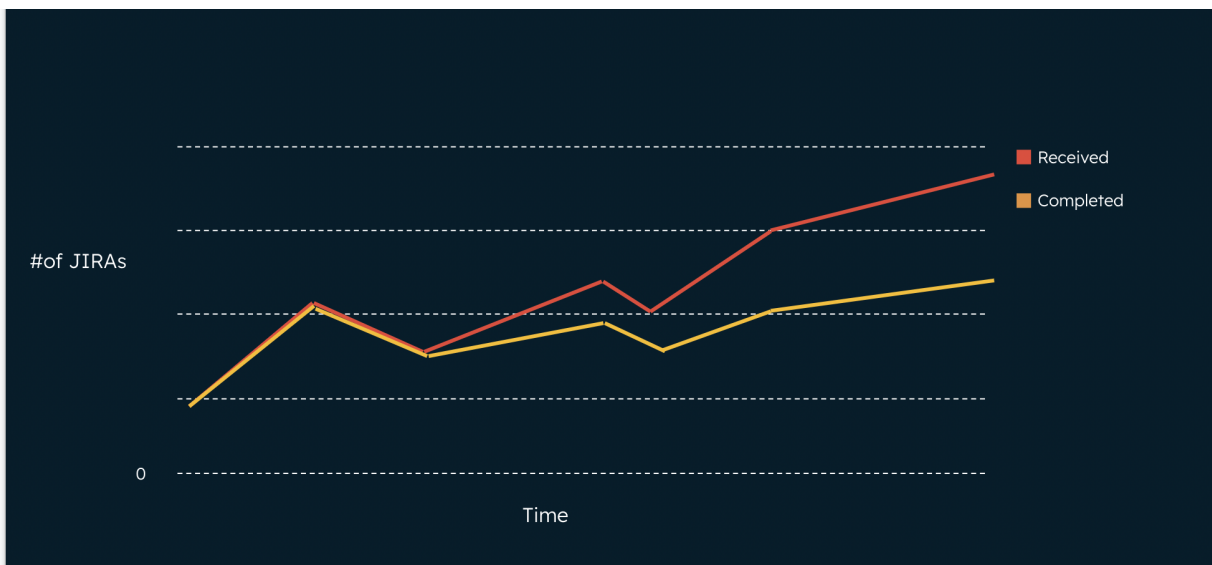


Figure 1. Application change requests over time on a relational database.

MongoDB's founders saw an opportunity to tackle the challenges inherent to RDBMS. MongoDB, at the core of its design, supports flexible schemas, high availability, and scales horizontally. These features allow developers to save time on technical debt to bring innovative applications faster to market and lower TCO.

The following sections discuss the significant challenges with the CLM and modernization opportunities using MongoDB.

1) Data Silos To Operational Business Domains

Most banks rely heavily on band-aids or end-user computing applications (EUA) created by a business user or a semi-technical team to avoid regulatory fines. However, controlling changes and integrations between the EUAs is extremely difficult, resulting in high operational risks and locking valuable resources for maintenance.

Figure 2 below shows some example use cases of band-aids often used by investment banks in the CLM space.

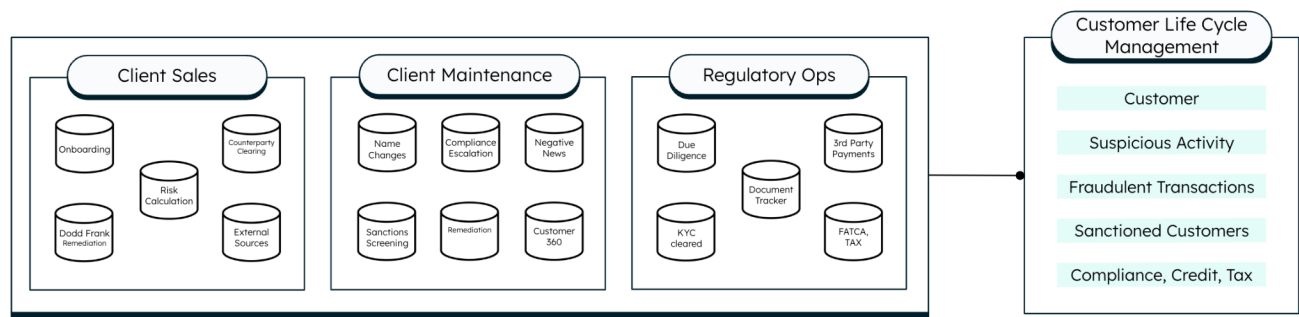


Figure 2. Data silos to Single MongoDB Operational Data Store

Examples use cases for EUAs:

- **Compliance escalation tracking.** Uses Excel and SharePoint-based tracking tools to escalate politically exposed persons (PEP), negative new searches, etc., to compliance.
- **Client remediation.** Tactical systems storing client lists require a specific regulatory remediation process like Dodd-Frank.
- **Client data reconciliation.** Tools to reconcile data between siloed systems, such as client onboarding, reference data, and trading systems.

To stop the growing number of siloed EUAs, the core systems handling the customer lifecycle need to become easy to change and extend. Most banks use MongoDB to modernize their infrastructure to increase agility without disrupting business operations.

As a first step, developers design a domain-driven model on MongoDB by taking inputs from individual domain experts. Then the domain-specific operational data from the legacy system gets replicated into MongoDB, which serves as an operational data store (ODS). Developers leverage the MongoDB aggregation pipelines and data federation to seamlessly enrich data to create customer 360 views; for example, during the onboarding process, an enrichment aggregation pipeline is used to enrich customer addresses and perform a politically exposed person (PEP) check by data federation through an HTTPS endpoint.

There are other benefits of ODS; since MongoDB supports full transactionality, the ODS slowly evolves into the system of record for some or even all of the customer data. The ODS serves as a “system of record” for many applications and power AI/ML-based real-time fraud prevention applications, saving millions of IT costs on new regulatory compliance. Banks use MongoDB to manage CLM data as operational business domains in one database and customer data in a single document. The flexible document model allows developers to build new functionality quickly on existing applications.

2) Sprawling Technologies To Unified Platform

Besides siloed band-aids and EUAs, CLM teams manage different 3rd party niche technologies, for example “Graph, Analytics, and Data Lake” for fraud prevention and transaction monitoring, “Search” for sanctions list search, “Mobile” for customer experience. Niche tools are generally bought off the shelf or vendor-managed.

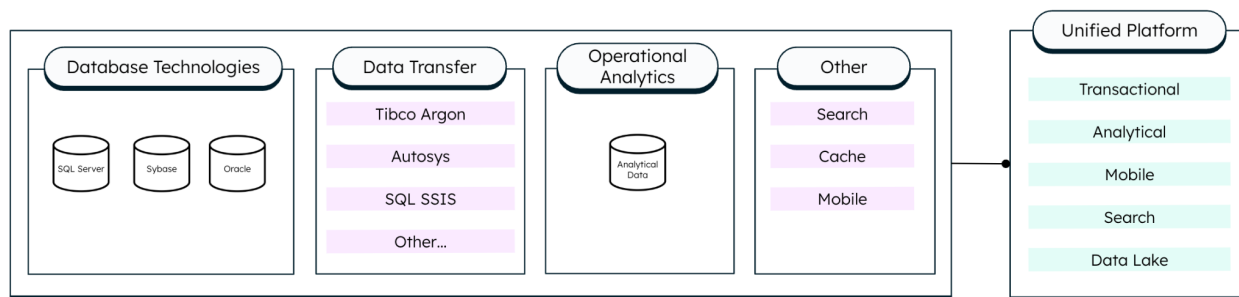


Figure 3. The transition from sprawling niche technologies to MongoDB unified platform

To read more about MongoDB’s developer data platform, please [click here](#).

With technology sprawl, organizations start to feel the burden of learning, maintaining, and figuring out how to integrate their data between a growing set of technologies and siloed applications.

At this point, organizations begin to see that the time, people, and money spent on the data infrastructure starts eating into innovation spending and increases [the data and innovation recurring tax](#) (DIRT).

[According to McKinsey](#), rising application maintenance and development costs are driving the increase in overall IT spending on Financial Services.

As shown in Figure 3 above, banks use MongoDB's unified data platform that accommodates varied workloads, including analytics, mobile, search, and data lake. The unified approach to CLM removes technology sprawl and saves raw costs making it easier for DBAs to manage functions such as audits and access management.

3) DIRT To Developer Productivity

Banks use multiple development teams to manage CLM applications. Each group controls its applications, from selecting technology tooling to security and standards. The absence of centralized ownership leads to gaps in the overall program's priority, support, maintenance, and strategic direction.

The lack of centralized governance and the traditional band-aids, EUAs, and sprawling data infrastructure make up for the developer recurring innovation tax (DIRT) that most financial organizations pay.

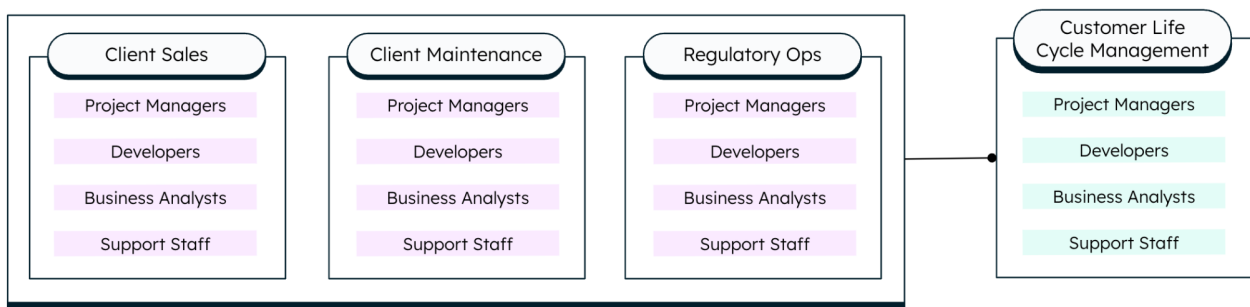


Figure 4. Developer innovation in-house and increased feature velocity

To read more about MongoDB's vision for developer productivity, please [click here](#).

The strategic transformation of CLM apps to MongoDB allows banks to have a single dedicated team that promotes a centralized governance model, as shown in Figure 4. Such a single focused group will help align priorities, create standardization, and improve development time to market and each application's overall support and maintenance experience. When a single team manages CLM applications on MongoDB through centralized governance, developers spend more time building great applications and less

time managing. With improved developer productivity, financial organizations save money and deliver new features fast.

4) Legacy To Industry Leadership

MongoDB's developer data platform brings financial institutions best-of-breed capabilities to help to innovate and proactively manage financial crime, compliance, and AML.



Figure 5. Single developer data platform for operational excellence

A central domain-driven data-as-a-service infrastructure can potentially provide one version of the analytical “truth” to business users throughout the enterprise. Financial services institutions can confidently manage performance, governance, risk, and compliance.

A flexible schema and a unified data platform would allow institutions to meet emerging business and regulatory requirements with reduced expenses and help them future-proof and leverage existing investments.

Legacy rules-based AML and fraud prevention systems lack the sophistication needed to recognize nuances of rapidly evolving fraudulent transactions and keep up with changing consumer expectations. Developers deliver against these challenges using [MongoDB Atlas](#) in-app analytics to implement complex AI/ML features from massive data and with [MongoDB Realm's](#) mobile platform to provide the customer with a real-time personalized experience that is relevant and accurate.

Conclusion

Traditionally, financial institutions relied heavily on legacy relational databases to manage CLM applications, particularly in case management workflows, AML, Fraud Monitoring, and Sanctions Screening. Since rigid schemas in relational databases are difficult to change and manage over time, banks build EUAs, and band-aids, and create technical sprawl. These problems increase the time to market.

The whitepaper proposed modernizing CLM applications using MongoDB, a modern developer data platform. The MongoDB data platform eliminates the need for niche point-to-point technical sprawl, band-aids, and EUAs. This allows Banks to create ODS (operational data store) and consolidate the entire scope of applications the CLM team covers, namely:

- Client Onboarding, Client Due Diligence, Periodic Reviews
- Fraud Monitoring
- Know Your Customer/AML
- Sanctions Screening

Onto a single MongoDB developer data platform, which would result in:

- Reducing and possibly eliminating conflicts in priorities and resources
- Reducing risks across the program, while simultaneously increasing efficiencies and savings
- Reducing development time frames while eliminating fragmented development experience.

MongoDB solves the technical problems behind the legacy CLM applications, enabling financial institutions to serve compliance requirements with accurate data in real time. Modernizing the CLM application using MongoDB reduces data duplication, which saves raw costs and makes it easier for DBAs to handle audits and access management.

Industry-leading banks are adopting MongoDB as the developer data platform to modernize their CLM infrastructure to achieve faster time to market, lower TCO, competitive advantage, and regulatory compliance. Banks that innovate and adopt new technologies and techniques, such as MongoDB and AI/ML, will be industry leaders in the future.

About MongoDB

MongoDB empowers innovators to unleash the power of software and data. Whether deployed in the cloud or on-premises, organizations use MongoDB for trading platforms, global payment data stores, digital end-to-end loan origination and servicing solutions, general ledger system of record, regulatory risk, treasury and many other back-office processes. At the core of our developer data platform is the most advanced cloud database service on the market, MongoDB Atlas, which can run in any cloud, or even across multiple clouds to get the best from each provider with no lock-in.

To learn more about MongoDB, visit MongoDB.com

About the author



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