Making sense of cloud-native core banking migration

A banking leader's guide to the how and why of cloud-native core banking migration from 10x Banking. In collaboration with Amazon Web Services (AWS) and Contino, a Cognizant Company.

10x   CONTINO
        a cognizant company   aws

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Introduction

To compete in a digital world, many banks, building societies, and credit unions, need to become more competitive, customer-centric, and agile.

In many cases, this means modernizing their core systems. By adopting modern, cloud-native core banking platforms, banks can move from rigid and slow-paced tech stacks to foundations that enable the next generation of banking.

Get it right, and financial institutions can improve speed to market, develop innovative, customer-centric products and experiences, rethink their connection with customers, and significantly reduce operational costs.

Since core systems are a bank's engine, change must be carefully considered. Problematic migrations can result in downtime, data loss, regulatory issues, and project failure, resulting in poor customer experiences, fines, and reputational damage.

Because of this, many banks have chosen to focus their innovation on front-end customer experiences like banking apps and websites. But over time, the legacy back-end tech stack will restrict banks from delivering the products and experiences they want to give their customers. It creates an internal operational barrier that dictates how much flexibility, control, and insight banks have. And how much of this they can pass on to customers.

Increasing numbers of banks are migrating to a cloud-native core[1] to:

- Compete more effectively with digitally native challenger banks
- Build secure, compliant, and resilient systems
- Simplify operational processes by replacing legacy technology.

[1] The Banker: Banks head into the cloud

Why cloud-native?

Many banks run their core banking operations on aging platforms that were deployed in the 80s and 90s[2]. These systems are usually hosted on-premises, built in-house, or heavily customized over the years to meet changing operational and regulatory requirements.

SuperCore®, 10x's core banking platform that runs on AWS, is cloud-native. It's developed specifically to run in the cloud, built on a highly resilient microservices architecture designed to lower the total cost of ownership significantly.

SuperCore has been built from the ground up to take advantage of everything that the cloud has to offer.

This approach differs from the legacy core banking systems that banks run on-premises, built as monolithic applications with a single block structure containing all the required functionalities. With monolithic architectures, all processes are tightly coupled and run as a single service. Adding or improving a monolithic application's features becomes more complex as the code base grows.

> **Between on-premises and cloud, there's a different way of thinking. But just because I have something in my own data center, as many organizations have proved over the years, doesn't mean it's any more secure or resilient.**

Jonathan Sowler
VP of Engineering
10x

This complexity limits experimentation and makes it challenging to implement new ideas. This complexity is a real challenge for banks in an increasingly competitive market where the pace of change is high. As digitally-native competitors iterate quickly to prove new customer-facing features, banks with monolithic, on-premises banking systems struggle to keep up.

The process of designing, building, deploying, and managing applications in the cloud is very different. For example, lifting and shifting a legacy core banking system to the cloud doesn't transform a bank. While moving legacy platforms to the cloud has some benefits (such as improved security), banks won't benefit from the faster time to market, improved customer experience, and reliability and operational transparency that come with cloud-native applications.

Working with Contino and AWS, 10x has adopted cloud-native best practices to make SuperCore inherently efficient, scalable, secure, and flexible. SuperCore has been built from the ground up to take advantage of everything the cloud and AWS have to offer.

The benefits of cloud-native core banking

1. Security

For AWS, security is the top priority. The data centers, cloud infrastructure, and surrounding security measures are maintained solely by AWS. It's very challenging for a bank or any company to have the people, training, and protocols to maintain and improve security measures like AWS does continuously.

On top of this, 10x runs SuperCore as a SaaS-managed service, which means the platform is hosted and run on behalf of banks, creating an additional layer of security. For example, 10x runs its own Security Operations Centre (SOC), providing 24/7/365 incident management and client support.

Finally, banks then add their security measures and protocols to protect the data within the platform, ensuring robust protection at all levels. With three layers of security, two of which get managed on behalf of the bank, a cloud-native core banking platform offers a significant upgrade, enabling banks to get ever more fine-grained with their approach to security.

Security and compliance is a shared responsibility between AWS, 10x, and the customer. The shared model helps banks relieve the operational burden, making it clear what each party is responsible for, rather than the entire stack being the bank's responsibility.
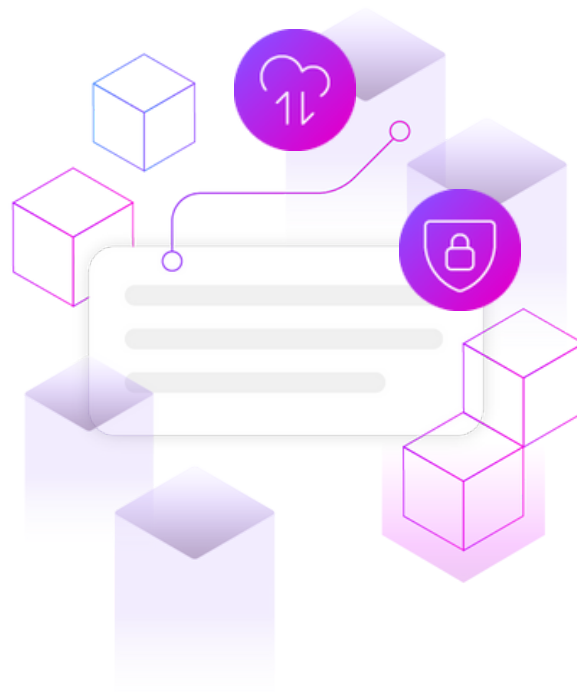
> Although banks are security machines, they will find that the cloud is an area they can buy in a service that is absolutely fit for purpose. And they can focus on the risk management of running cloud services and focus some of their resources elsewhere.

Jonathan Sowler
**VP of Engineering**
10x

2. Availability

SuperCore can be deployed globally in any AWS region and can be updated by 10x without downtime. Banks get new features and security improvements added to their core banking platform without affecting customer availability. This futureproofs the platform as it evolves over time, and it also helps banks move away from planned downtime for patches and updates, which is common with legacy systems.

3. Scalability

The cloud enables banks to scale to meet demand without impacting service availability. And SuperCore is built to automatically scale to deal with spikes in demand on a pay-as-you-go basis. Only the infrastructure used gets paid for, rather than paying to keep additional capacity on standby for predicted and unforeseen spikes.

For example, carrying out resource-intensive activities like interest calculations across millions of accounts each night. Because the infrastructure is elastic and only scales when required, this process costs much less in the cloud.

Once the calculations are complete, the platform scales down automatically. Scale and cost optimization become much easier with a cloud-native tech stack.
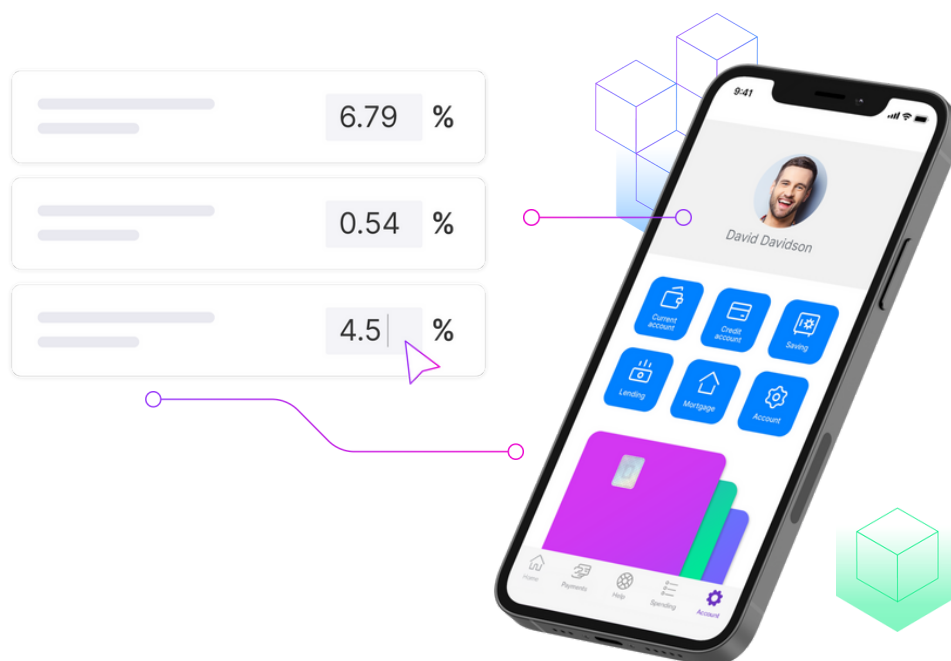
4. Data and analytics

From fraud to customer service, many use cases around a bank benefit from real-time data. Banks can generate insights much faster than with batch-based core banking systems, which means banks can respond to customer behavior more dynamically.

Data on the 10x platform gets generated in real time. All data points, for example, related to transactions or customers, can be privately consumed via data streams or APIs by any other system in a bank's tech stack. Banks can centralize their data using data streams to build a complete picture of their customers in real time.

> There's a lot of science and discipline on how you secure services and deliver services at fast pace in the cloud. And there's a lot of good practice that can readily be adopted. Cloud raises the bar.

Jonathan Sowler
VP of Engineering
10x

> In this ever-evolving technology landscape, forging resilient core banking implementations requires you to weave the threads of security and DevSecOps into the very fabric of core engineering. This ensures that innovation is not only powerful but also safeguarded.

Ruchir Sanghavi
Account Director
Contino

Why migrate?

The average age of a universal bank's IT applications is 14 years, whereas, for a digital bank, this is only three years[3]. Digital challengers, who range from neobanks to big tech firms to fintechs, tend to have fewer technical constraints and more flexibility, meaning they can release new products and experiences more efficiently.

Crucially, because digital banks have modern technological foundations, which enable change and can be readily updated, they won't age in the same way that legacy tech does.

Unfortunately for incumbent banks, iterating quickly with their existing core banking platforms is difficult, costly, and risky. The tech estate can be so complex that evaluating the feasibility of new products, features, and requirements can involve a lengthy investigation[4]. While speed is crucial today, only 32% of banks believe they can respond to market needs in the required time[5].

Today, it takes banks 3.8 months on average to launch a new product in an existing market[6]. However, cloud-native core banking platforms enable banks to build products quickly and push them into production without dev support. As a result, banks can deliver products and updates much faster, which challengers have been successfully championing.

32%

Only 32% of banks believe they can respond to market needs in the required time.
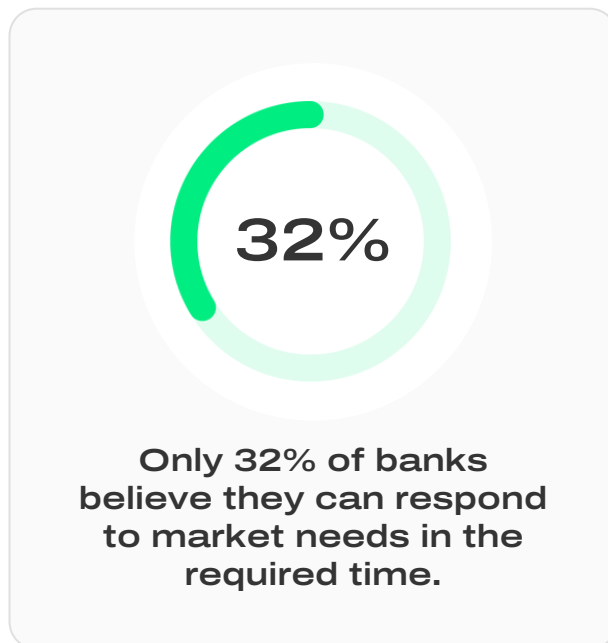
Legacy infrastructure makes extracting and transforming data into actionable insights a slow and brittle process[7]. When the data is ready, it typically gets stored in systems that aren't accessible in real time.

Migrating can enable banks to centralize customer data into a standard format that gets updated in real time. A cloud-native core helps banks to move from disparate datasets to a single customer view, enabling better customer service, contextual offers, and better decisioning.

With the right tech stack, it's easier for banks to deploy product and service innovation to meet the needs of increasingly personalized customer segments. Digitally native core banking gives banks the tools to safely, securely, and compliantly respond to changing customer needs quickly and efficiently.

While the business benefits of core banking modernization are tangible and easy to envisage, the path from legacy to cloud to realize them can be complex. The following section will share how this journey can be risk-managed to help banks successfully migrate.

[3] Mckinsey: Why most digital banking transformations fail

[4] 10x Banking: Why banks need digital transformation to retain their staff

[5] 10x research: Global banks and the transformation illusion slowing progress

[6] 10x research: Global banks and the transformation illusion slowing progress

[7] 10x Banking: The power of data

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The six phases of a core banking migration

The following framework mitigates common challenges during a core banking migration project. There are many types of migration, but in this instance, the data is moving. Legacy core banking systems can be left behind by migrating all customers, accounts, and transactions to a new cloud-native core banking platform that fits today's banking needs.

When this framework is used with 10x's migration tooling, designed and developed with Contino, banks have the tools to ensure a resilient, low-risk migration path across to SuperCore.
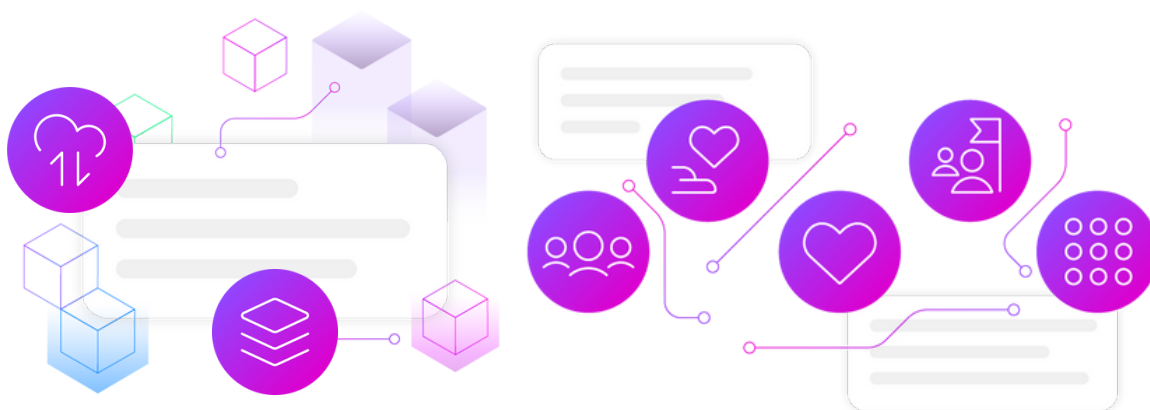
It starts with a well-defined plan

A migration plan details the high-level process of migrating existing data from core banking systems to a cloud-native banking platform. A specialist systems integrator like Contino typically works with a bank to define this approach.

Moving to a digital operating model is an enterprise-wide shift, and bringing every part of the organization on that journey is key. Banks also need to consider comms, governance, and training alongside the actual data migration. Everybody working for the organization needs to understand how changing processes will affect them once the migration is complete – and should crucially understand that everyone benefits from its success.

A well-defined strategy includes:

Gap analysis

It's important not to underestimate the current tech constraints before starting a change project. By defining organizational goals, benchmarking the current state, and analyzing the gap data, a gap analysis will assess current performance to help maximize the benefits of the new platform.

Cross-functional alignment on KPIs

Examples include identifying long-term technical debt relief, reducing the cost of specialist skills needed to maintain legacy codebases, and the longer-term upside of penetration into new demographics, markets, and business lines.

Data consolidation and transformation

Existing customer and transaction data is vital to the migration. Banks must understand what data is required, where it resides, the state it's in, and the effort needed to cleanse the data ready for migration.

Product consolidation

Understanding how the product suite will get consolidated on the target platform removes unnecessary work and complexity during migration.

Capability analysis

Adopting and modernizing your core banking platform requires an as-is analysis of cloud skills and maturity, with a roadmap to a target state that enables a smooth technology transition to SuperCore.

Rollback capability

Testing, reconciling, and rolling back during the migration is critical to avoiding complications. With these features, all parties can be assured that data has migrated accurately to the target platform.

Robust governance

Structures and clear responsibility models ensure proper oversight throughout migration.

Strong project management

Including realistic scheduling, risk management, and stakeholder coordination to help avoid scope creep, budget overruns, and missed deadlines.

1. Extract and transform data

Mapping and converting data correctly is key to migrating accurate customer records. To ensure data quality, integrity, and accuracy during a migration, banks should conduct a thorough data analysis, validation, and mapping. Data must be extracted, transformed, and cleansed to match the 10x platform schema. The schema is like a blueprint for the 10x platform that highlights how data is organized within the database. This includes table names, fields, data types, and the relationship between these entities.

Typically, a systems integrator like Contino would assist with getting the data into the required format.

2. Create migration products

Once transformed, historical customer and transaction data must map to the right financial products, so the entire product backbook needs to be built on the 10x platform. This includes old or closed versions of products – a total history of products is helpful for interest calculations and backdates to accounts that are required after the migration is complete.

10x benefit:
Using 10x's no-code product builder, Bank Manager, Product teams can build their backbook without developer support in a few hours. Features like limits and rates are combined to create products that replicate the behavior of the bank's existing portfolio.
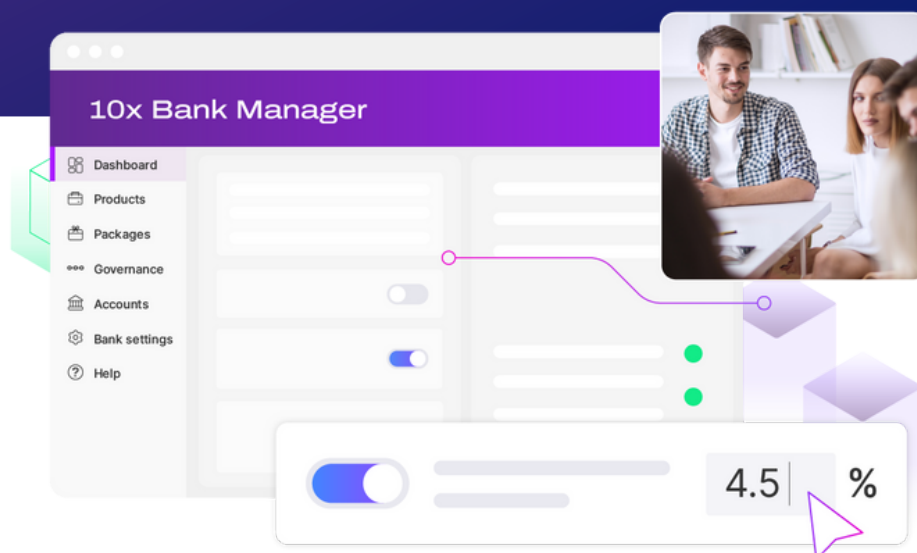
3. Load and test

Once the product backbook has been built, customer and transaction data can be uploaded in batches. Given the varied nature and volume of the dataset, banks need to be able to load their data in any order, rather than a specific order defined by the target platform.

Data tends to come from the existing core platform, the new core, and the general ledger. Data from each location must be tested and reconciled to avoid publishing inaccuracies to the live platform.

10x benefit:
When data is loaded onto SuperCore, it doesn't go live straight away, which is different from most core banking solutions, where data goes live automatically once uploaded. This allows banks to test data within SuperCore in a safe and contained way. Also, the cloud makes it easy to build and tear down replica environments for testing, so any issues found during this phase don't affect the live platform. This prevents knock-on issues because bad data has made it onto the live platform.

Secondly, banks can upload their data to SuperCore in any order, for example, by product group, geography, branch, or customer segment. This allows banks to migrate in the way that suits their strategy and enables them to upload data in smaller batches for a methodical approach.

Finally, SuperCore's migration tool intelligently orders records by time-based on entity relationships. It also controls data upload speed to avoid any impact on live traffic.
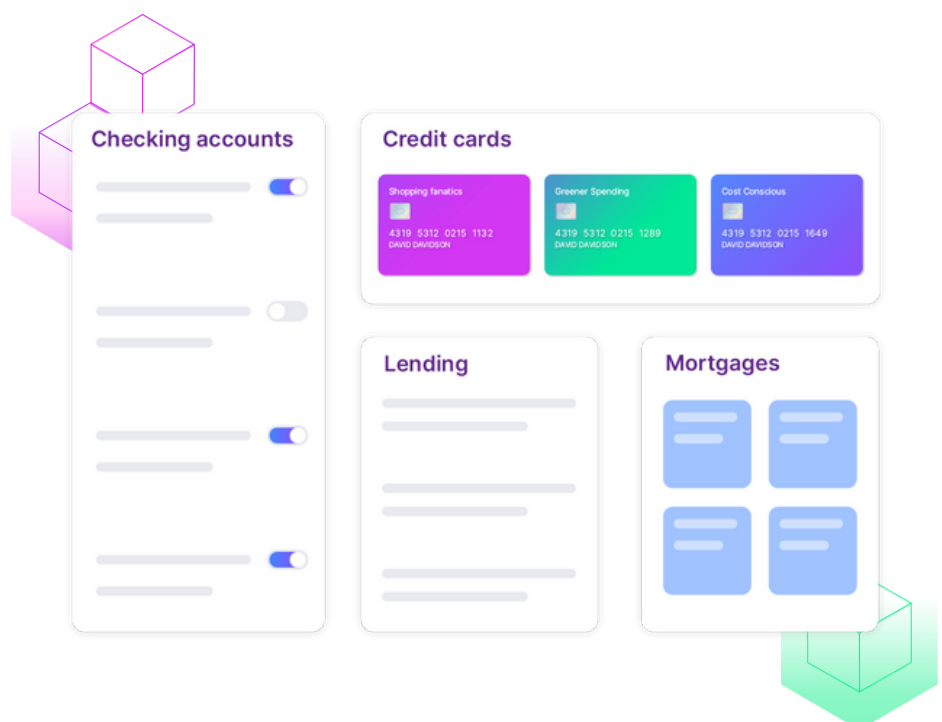
4. Rollback

The extract, transform, and load phases are complex as data often isn't optimized at the start of the migration. Therefore, when inaccuracies are detected, or reconciliation errors occur, banks need the ability to identify the issue, edit affected records, and roll back changes. Rollback functionality is vital to reverting to the last known 'good' state. Back-up and rollback planning are essential to applying ongoing fixes throughout the migration process.

10x benefit:

The 10x migration tool allows all data to be loaded with a 'near live' status, enabling banks and systems integrators to perform reconciliation on loaded data without any adverse impacts. When 'near live', all data can be modified, reloaded, or deleted any number of times, giving banks complete control and assurance that data has been accurately migrated.

Any data batches that require further cleansing can be deleted from the platform when 'near live'. Banks can repeat this process any number of times, providing a way to roll back changes easily.

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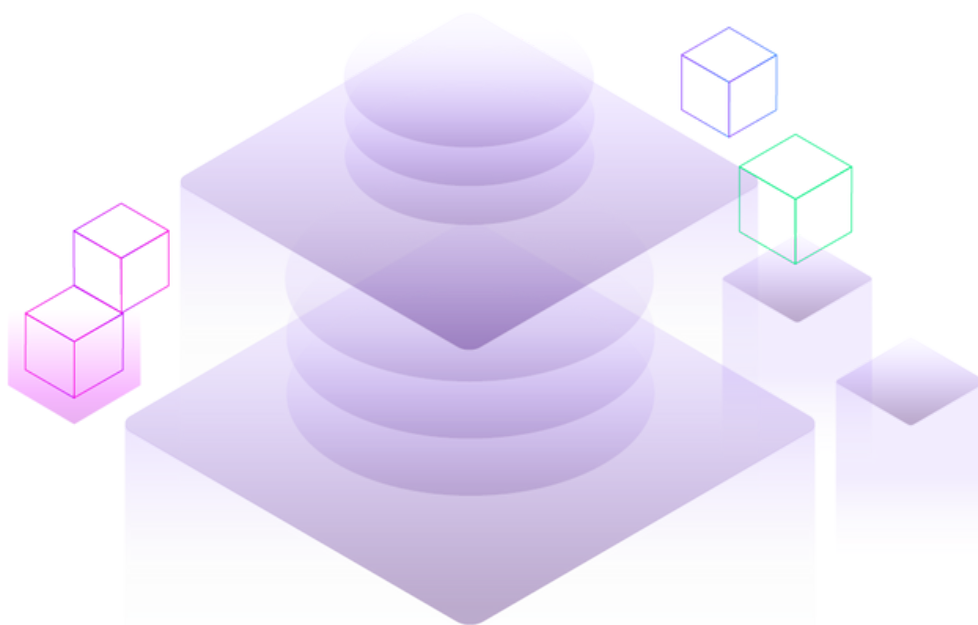
5. Reconcile and publish

Once data is loaded onto SuperCore and in 'near live' status, it must be validated and reconciled. This ensures data quality between the source and the target platform, confirming that the data on the target side is the same as the source, avoiding business disruption after going live.

10x benefit:
The migration tool performs schema validations and logical checks to ensure consistent data records. It also performs financial reconciliation by verifying account balances and the count of transactions against the transaction history. This ensures that all accounts are complete with the correct transactions upon upload.

As each record is validated, the platform publishes events so that banks or systems integrators can provide real-time reporting on the progress of upload and reconciliation.

6. Cutover

Once a batch of accounts has been loaded and validated, it can be published to the live platform using an API call. Once live, data can no longer be modified.

10x benefit:
Banks have granular control over what goes live and when. Similar to data upload, data can be published in batches. For example, banks can prioritize certain product groups, geographies, branches, or customer segments. This allows banks to deliver a phased migration, moving slowly and methodically through the dataset.

Advantages of phased migration

Reduce risk

By migrating in small batches, banks can identify and address issues early, reducing the risk of large-scale delays or disruptions.

Control costs

Banks can manage costs more effectively by spreading them over multiple phases, enabling better financial planning and resource allocation.

Minimize disruptions

Since the migration occurs in smaller increments, the impact on daily operations and end-users is minimized. It allows banks to manage change, provide training and support, and address concerns or challenges more efficiently.

Faster time-to-value

Phased migration allows organizations to realize benefits sooner, as they can use new components and functionality as batches are complete.

Conclusion

Many challengers, fintechs, and big tech firms entering financial services have favored fully digital, cloud-native foundations[8]. And as a result, they can be agile and fast-paced while compliant and risk-managed.

Over time, as these new market entrants mature, they will eventually be able to outpace the market and redefine the financial experience, continuing to take a share of wallet away from incumbent banks.

But these cloud-native capabilities aren't only available to nimble challengers. They also offer traditional banks a low-risk way to stay ahead and lead the market.

It's no longer competitive for banks to build and manage everything in-house, so banks can use cloud-native platforms like SuperCore to test new capabilities and get a feel for what a digital back end can enable. Because SuperCore runs on AWS, banks looking to test out cloud-native core banking can spin up a proof of concept at a low cost, without risk, and prove value in 12 weeks[9].

Book a free discovery workshop with experts from 10x, AWS, and Contino to dig deeper into how a cloud-native migration could work for your bank. Leverage our knowledge, develop your strategy, and see what's possible.

[Book a migration workshop today]

[8] The banker: Putting core in the cloud

[9] 10x Banking: Build a greenfield bank use case

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