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The Cloud Migration Guidebook

The Amazon Web Services (AWS) and Mambu Guide To Seamless Migration for Incumbent Banks

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Executive summary

Traditional banks and financial institutions (FIs) face a rollercoaster of challenges - from an uncertain macro environment to high levels of technical debt and runaway competition. While most recognise that to stay on the rails they must move operations to the cloud, many are still struggling to successfully navigate change.

In this guidebook, Mambu and AWS share their insights and practical advice to help FIs free themselves from cumbersome legacy platforms and close the growing agility gap by moving to the cloud.

It seeks to demystify some of the critical decisions traditional banks need to make before initiating their journey. And, if they've already started it, the pitfalls to avoid to prevent a bumpy ride.

In addition, it highlights how to fast-track application transition and reduce strain on IT departments by transitioning to a next-gen cloud-native core banking system to maximise integration flexibility and create real competitive advantage.

Key focus areas

Aimed at traditional banking tech leaders and C-suite, this guide seeks to simplify and smooth their transition to the cloud by outlining:

01

The rationale for change.

02

Five critical planning steps for successful cloud-based core-banking migration.

03

How to assess options using a migration scorecard.

04

Common pitfalls for FIs looking to migrate.

05

Why starting from the core can fast-track transition.

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Data migration considerations.

1. The rationale for change

Customers are looking for better, faster and more convenient ways to manage their finances.

To level the playing field, banks need to move more workloads and key back-end systems into the cloud. However, transitioning from legacy infrastructure to cloud-based, even partly, is rarely a straightforward exercise.

IT environments, particularly for larger FIs, have become more complex than ever and are driven by incrementally expanding requirements. As a result, traditional banks must strike a balance between addressing change management while simultaneously making decisions around how and when to retire technical debt.

Boxed in by existing hard-wired software, traditional banks face a growing agility gap, leaving them exposed to new entrants, neo banks and fintechs.

Unencumbered by legacy infrastructure, these new cloud-based competitors can leverage service-oriented architecture and methodologies like agile/devops, to deliver more responsive and personalised services - and achieve greater differentiation.

They are also powered by composable API-driven technology and benefit from simpler IT, lower operating costs, greater flexibility and more rapid experimentation. This enables them to scale fast, incorporate best-of-breed ecosystem partners and shift the IT agenda in favour of innovation.

Unfortunately, while there are several common components in successful core-banking to cloud migration, there is no one-size fits all approach.

Every organisation has its own unique goals, constraints, budgets, and market requirements that will guide its decision-making process along the way.

For example, the transition to a cloud-based core banking solution could be driven by business factors such as the need to scale or expand across markets, or technology factors, such as software licences coming to their end-of-life. Each of these carry different implications for the provider when deciding on the optimal migration approach.

2. Five critical planning steps for successful cloud-based core-banking migration

While there's no silver bullet approach that can cover every migration, there is a common set of guiding principles that any organisation can use to determine the correct strategy (or mix of strategies).

These can be broken down into five simple steps, each with their own series of best practice actions. Five steps for planning a smooth bank core-to-the-cloud migration.

1. Define & commit to a vision

It's important to articulate the 'why' from a business perspective so everyone understands that the journey is necessary (e.g. to build scale, improve performance efficiency, enhance competitive differentiation). Always ensure transformation goals are hyper-relevant to building tangible business value across key business, technology, and operational metrics.

2. Audit existing portfolio

- ➔ Componentise business and IT architecture (e.g. strategy, planning, control, tracking and execution) and identify applications for each architectural component (e.g. collecting customer insights, distributing and servicing products through channels, manufacturing products, managing financials and risk)
- ➔ Map components to capability to identify redundancies or gaps and prioritise areas of concern (e.g. resource consumption, high cost consumption and technical debt)
- ➔ Ascertain areas for delinking legacy systems i.e. rebuilding logic and rules with composable architecture
- ➔ Complete with a map of interdependencies, to provide a clear plan on *how* to migrate individual applications within the existing portfolio. Complexity will vary depending on the architecture and current licensing arrangements.

3. Build a viable business case

Once migration strategies are mapped, develop the business case taking into account age, architecture and constraints of existing applications. Be realistic and avoid trying to "consume" and not "own" IT from day one. A phased approach helps align cloud business case targets with cloud-architecture transformation.

4. Align organisation & culture

Set up robust organisational governance to define roles, responsibilities, and accountabilities with key metrics around operating costs, accrued benefits, costs savings, and impact on cost-to-income ratios. To enforce alignment, incorporate modernisation objectives into individual performance reviews.

5. Stress-test readiness & finalise plans

Use this best practice checklist to stay on track

- ➔ Decide how data will be stored/archived during migration to ensure a 360 view
- ➔ Develop rigorous and consistent migration processes
- ➔ Identify the relevant information-security and cyber-security requirements for cloud and ecosystems
- ➔ Define relevant talent needs and resources
- ➔ Include regulators and governing entities from day 0
- ➔ Implement agile working for early-failure-detection and quick decision making
- ➔ Set up a program management office to oversee transformation & stakeholder needs
- ➔ Define success criteria and critical milestones and exercise due diligence
- ➔ Factor scenarios for experimentation - include revised roadmaps and business cases
- ➔ Assign clear ownership of responsibilities and review processes

3. How to assess options using a migration scorecard

With planning finalised, FIs need to decide the best way to execute their plan. This often means weighing up the pros and cons of migration implications and making strategic decisions based on their specific considerations.

As with all important decisions facing CIOs in financial institutions, judgements around migration strategy must be data-driven with assessments built around clear considerations.

While some factors can be hard to estimate, metrics and relative point-based estimations can be used to make migration decisions comparable. This helps address the 'to migrate or not to migrate' scenario and aid in the vendor selection process.

A migration scorecard helps CIOs and their teams to focus on specific metrics and topics, rather than pure empirical assumptions.

The scoreboard on the next page, offers a good template to kick-off the decision-making process. When using the scorecard, there are some things to consider:

- ➔ While it won't cover every possible consideration and migration scenario, it can provide a solid baseline that can be enriched with organisation-specific criteria.
- ➔ Where replacement involves self-built (or heavily customised) systems, a clear definition of the technology and business architecture and boundaries is a prerequisite for the scoring exercise.
- ➔ Where a 'score' rating is required, one can assume empirically defined points. It's useful to agree these in advance in collaboration with other relevant stakeholders. These should be based on the organisation's circumstances: areas of focus, technological and business maturity, risk appetite, regulatory landscape and any other considerations.

Scorecard Instructions:

1) Assign a score between 1 (low) and 100 (high) for each criteria for both the existing and new core system (except where assessments are required on cost and age)

2) Calculate the average score across all key dimensions for both the existing and new system:
- Enterprise architecture
- Functionality and technology
- Data and security
- Money and vendors

3) Compare the average score for existing and new system for each dimension (higher average score is more favourable)

Migration scorecard

1. Enterprise Architecture

- **Mission criticality of the system (points):** Estimation of criticality of the system in relative points – what happens if the system fails?
- **Expected serviceable life (years):** How many years is the system expected to perform before becoming obsolete?
- **Alignment with target architecture (points):** Does the target architecture assume a replacement of the system, e.g. is the old system cloud-ready, does it support modern architectural approaches?
- **Dependency complexity (points):** What are the system's dependencies? How complex are they? E.g. what the interfaces and integration points look like?
- **Dependency complexity (list):** List of dependencies - both integrated and non-integrated, e.g. CRM, risk management system, ERP etc
- **Business goals (points):** How aligned is the system to the identified business goals? E.g. can you run new business-desired products on it?

2. Functionality & technology

- **CX functionalities (points):** What are the complexities underlying customer experience? Can they be addressed with the current system? How critical are they in relative points?
- **EX functionalities (points):** What are the complexities underlying employee experience? Can they be addressed with the current system? How critical are they in relative points?
- **Tech stack (points):** How modern is the current technological stack supporting the current system? E.g. programming language, databases, CI/CD? How scalable is the current technological stack? How easy is it to find/attract/retain talent for system development and maintenance of the current technological stack?

Migration scorecard

3. Data & security

- **Security considerations (points):** What are the identified vulnerabilities, risks and security-related backlog? How can you measure those?
- **Audit findings (points):** What the audit findings are, how critical are they, what is the pressure from the third line of defence?
- **Data management (points):** How does the system align to the data management criteria identified in the data strategy? E.g. traceable metadata and data ownership.

4. Money & vendors

- **Delivery model:** How is the system delivered and maintained? (Self-hosted/ managed/ SaaS/ IaaS/ PaaS). How prepared is procurement for a new delivery model (if needed)? E.g. has anyone procured a SaaS platform before, and what implications it brings?
- **Estimated vendor relations (points):** How can the existing relationship with the vendor be estimated? E.g. SLAs, time to react, subjective feelings of those involved with the vendor.
- **Exit preparedness (points):** How prepared is the FI to exit from a technical and business (commercial) perspective?
- **Cost of operation:** What are the operating costs? These can include licences, hardware (or cloud resources) needed to run the system, and other operational costs.
- **Asset value:** What is the asset value of the system?
- **CapEx vs OpEx:** How is the system consumed from a finance perspective? Is there a preference from finance on how to account for investments into systems?

4. Common pitfalls for FIs looking to migrate

Even with a great plan and a chosen approach, traditional banks face a mountain of challenges that can hold them back, force them to compromise or prevent their strategy from being optimised.

Most FIs understand that moving core functions to the cloud can help them achieve their long and short term operational and commercial goals.

However, high levels of technical debt, increasing IT costs, and runaway competition can distract or influence their decisions. In addition, many struggle to implement a technological transformation that may be misperceived by some business functions and stakeholders as complicated, daunting, and costly.

Consequently, many FIs end up falling into basic migration traps – doing too little, doing too much or compromising.

The three migration traps

Inertia
Delaying or putting off innovation agendas and falling behind the curve

Excessive Cost
Implementing high-risk, high-cost, big-bang transformations to expedite timelines and just 'get it done.'

Disconnect
Overhauling while keeping legacy back-end intact - otherwise known as **two-speed-architecture**

Inertia

Whilst the ultimate end goal is to have all data and processes on the cloud, this can seem too complex and overwhelming for many incumbents and, as a result, they fail to invest. While they sit on the fence, nimbler competitors with more modern and relevant FI services are ready to step in.

Excessive cost

Eager to get out in front, others rush in and take a 'big-bang' all or nothing approach. Migration of everything in one big project comes with high risks of ballooning budgets, extended timelines and risks to customers. Indeed, numerous high-profile examples of this have been seen around the industry.

Disconnect

In complex scenarios FIs may seek compromise by adopting two speed architecture (a legacy back-end with a new front end). This can be an effective way to facilitate innovation with minimal disruption. But success depends on whether the slow-speed, transaction-focused legacy back end (whose core systems of record must be designed for stability and high-quality data management) can fully support a fast-speed, customer-centric front end. Rather than helping them stay in the race, this approach can end up holding them back by impacting key performance areas including technology, operations and processes (see diagram on P12)

Why two-speed architecture hinders FIs

1. Creates architectural disconnect

Changes in cloud-hosted assets often requires changes to the existing on-premise assets. This can cause firewalls to be changed, APIs to be exposed, etc

2. Impairs organisational agility

As testing comes at the end of the process it can prevent FIs from realising the benefits of agile

3. Silos culture & drains talent

Splitting teams into those doing cutting-edge work and others working on traditional legacy transformation can backfire, draining talent and creating hiring difficulties

Avoid migration traps with a dual core approach.

A smoother transition can be achieved with a dual core approach where customers are progressively migrated, based on key events such as new product onboarding or product rollovers.

In this approach, the current banking core is still supported and usable for perhaps a couple of years, but any business growth, new products and customers go straight onto a new cloud banking core platform. The risks of this approach are much lower than with a big-bang or two-speed architecture approach. And new capabilities can be used much more speedily. Importantly, it helps keeps banks ahead, allowing them to go to market sooner with exciting new services, to accelerate automation and cost savings, and fend off fintech and bigtech competitors.

5. Why starting from the core fast-tracks transition

Cloud based players are unencumbered by legacy infrastructure. Instead, they use next-gen cloud-native core banking systems that leverage composable API-enabled technology to simplify IT, lower operating costs, provide greater flexibility and more rapid experimentation.

Traditional banks can also harness these super-agile platforms to power end-to-end operational agility and ensure there is no disconnect between front and back-end systems. And, because composable-API platforms involve minimal coding, they also encourage continuous service innovation without overburdening existing IT staff and resources.

Starting the transitional journey to cloud by replacing the legacy core and adopting a SaaS based, API-enabled composable model, like that offered by Mambu, can help drive quick wins relating to scalability and user experience (UX). It also significantly reduces implementation time and costs.

Composable API technology offers three key advantages for those looking to migrate bank services to the cloud.

1. More distinctive customer experiences

Minimise complexity:
Simplified architecture improves ability to create and deliver differentiated financial experiences

Maximise flexibility:
A composable approach provides freedom to integrate with 'best-of-breed' components/ecosystem partners, and quickly add connected services via APIs

Control the customer experience:
APIs allow FIs to control the experience layer and continuously improve the UX layer

2. Greater competitive speed advantage

Innovate freely:
Composability allows FIs to reduce complexity and expose business logic to users

Expedite reaction time:
SaaS and cloud-based services using agile/devops enable constant iteration to re-configure products based on changing customer demands and market trends

Next-gen platforms:
Technologies built on a single-code-base can be kept up to date with seamless upgrades/changes that help minimise technical debt and business disruption

Compete anywhere:
Cloud-native SaaS-based offerings provide a geographically-agnostic foundation that eliminates barriers to expand into new markets

3. New economics & faster monetisation

Achieve economies of scale:
SaaS subscription models offer transparent and predictable economics with significantly lower costs, better value alignment and less up-front investment compared to legacy platforms

Create faster route to revenue:
Continuous-delivery software engineering and devops improve performance through rapid-cycle feature updates and product roll-out cycles that can be measured in days rather than months

Contained experimentation:
Sandbox capabilities allows FIs to continuously iterate and refine while keeping costs under control

Elevate human performance:
outsourced CBS management and maintenance minimises strain on IT departments and helps shift the agenda in favour of innovation

Worldwide, banks are choosing to migrate and gain an advantage with Mambu.

Mambu in action:

TymeBank
Empowering new economics

South Africa's first licensed 100% digital bank was not born in the cloud. Its legacy core banking system struggled to cope with sudden success. Mambu helped the bank reduce operational IT costs by 50% while signing up >100k customers a month. Tyme now has over 5 million customers and is planning international expansion.

Cake
Full service digital banking

Initially providing a limited number of financial services through its app, Vietnam based Cake soon realised there was a gap in the market for a full service digital bank for Vietnam's young and digitally-savvy population, a large proportion of whom are unbanked. It took just 74 days from MVP to launch and Cake now has close to 3 million retail customers

BancoEstado
A digital evolution

BancoEstado's mission is to provide financial services to individuals and businesses, support its customers' growth, and act as a catalyst for Chile's sustainable development. Mambu will digitise BancoEstado's transactional services via a complete transformation, furthering the bank's medium and long-term strategy to become a sector leader, positioning BancoEstado as a modern and cutting-edge financial pioneer, both among traditional banks and new industry entrants.

6. The final step: Data migration considerations

The final step of any traditional bank's transformation cycle is deciding how to migrate accounts and transactions from the legacy core to the new one.

Choosing an account migration path.

Several factors that come into play when selecting the most appropriate way to handle data transfer while avoiding disruption and maintaining a seamless customer experience.

These include:

- ➔ the type of product or service offering and their corresponding complexity
- ➔ the underlying technology architecture
- ➔ the data format of legacy systems.

Typically, these can be addressed by choosing one (or a combination) of the following approaches - optimised to suit your product offerings and customer base.

1.Re-Enrollment

- Consolidate the legacy product offering before migration
- Close accounts on the legacy system or have them mature as planned and create new accounts with new potentially different terms and conditions

2. Historical Migration

- Replay accounts by backdating clients, accounts and transactions with their legacy value dates to the migration date
- Consider truncating the history of deposit account transactions to e.g. 2 years, archive older data
- Migrate closed accounts

3. Service Triggered Migration

- Use Servicing Events to close the legacy account and create the next phase of the account on Mambu
- For example - client wants to lock-in a new fixed interest period for their mortgage, extension of the loan or debt consolidation

Re-enrolment

The re-enrolment migration path seeks to harmonise and rationalise FI offerings built up through years of offering 'highly bespoke' products.

Considerations include:

- ➔ It involves a mapping of 'to-be' to 'as-is' products.
- ➔ Migration plans should include customer communications.
- ➔ There is usually a 'big-bang' point in time transition, where product administration is migrated to the new environment.
- ➔ With this model, banks don't need to move historical data into the core. Instead they can use operational and compliant stores to meet customer and regulatory retention requirements.
- ➔ If required, old products and terms can be retained to mature in the legacy environment but requires an abstraction layer to unify the front-end UX.

Historical migration

As banking systems transition from large, batch-based monolithic solutions to event-driven, real-time SaaS solutions based on micro-services, it may not be possible to simply set historic data into the new solution's datastores. In this case, accounts and transactions must be 'replayed' to rebuild the customer in the new environment.

Considerations include:

- ➔ What data is needed to migrate to the core for customer operations?
- ➔ What data should exist in operational data stores (i.e., the core banking platform is not a statement generator or reporting engine)?
- ➔ Which approach to historical account migration is required and whether intelligent tiering can be used (e.g. Amazon's intelligent tiering capabilities for statements and archiving)?

Service triggered migration

This approach uses servicing events (e.g. restructuring a loan, issuing a new card, a change in interest rate from fixed to variable) to close the legacy account and create the next phase of the account on the new core bank cloud platform. In this way, a gradual migration of data takes place over time.

Considerations include:

- ➔ For a certain period, two different solutions may have to be maintained and operations and IT personnel required to operate and maintain both.
- ➔ This has less risk compared to a big-bang approach, but only if there is no burning platform issues within the existing core.
- ➔ Products' front and back ends may exist in two different solutions i.e. a user may log into an old solution for a deposit account but a new system for a loan. An abstraction layer may be required to unify the UX.

Conclusion

To succeed in today's fast-paced financial markets, it's no longer enough for FIs to give customer-facing operations a digital makeover.

Being truly responsive to customer, operational and market needs means having every layer of the business operating at the same fast pace so they can pivot, change and innovate rapidly on demand.

Ensuring that back-end systems are as future-facing, iterative and rapidly evolving as the front end is the only way to truly deliver the highly customised, innovative and scalable financial services that today's customers expect.

In the face of intense competition and growing customer expectations, FIs and banks that have not already started their cloud migration could soon be left behind – facing increased churn, poor acquisition and loss of market share.

To ensure their place at the future financial service table – and a larger slice of the pie once there - traditional banks must ensure that their organisation and culture are aligned to cloud transformation goals.

Vision is nothing without a cohesive and well thought out plan.

A migration strategy based on best practice principles that properly evaluates requirements and selects the best transformation approach based on existing assets, functionality requirements and costs is mission critical.

Whatever model FIs choose, composable API-based technology is key to accelerating ROI.

Using a proven change accelerator platform such as Mambu's core cloud banking platform running on AWS can help simplify the process, optimise performance and accelerate results.

With the right approach, partners and FS-tech, banks can safely avoid inertia, excessive costs and disconnects and navigate their way to a successful cloud migration.

Accelerating your cloud journey starts here:

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About Mambu

Mambu launched in 2011 with the aim of enabling free access to modern financial services for all. The only true SaaS cloud banking platform, Mambu's unique composable approach allows for the flexible assembly of independent components and systems to fit the exact needs of your business and customers. Mambu supports over 250 customers in 65 countries.

mambu.com

About Amazon Web Services (AWS)

AWS is the world's most comprehensive and broadly adopted cloud platform, offering over 200 fully featured services from data centers globally. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies—are using AWS to lower costs, become more agile, and innovate faster.

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