TATA CONSULTANCY SERVICES

Building on belief

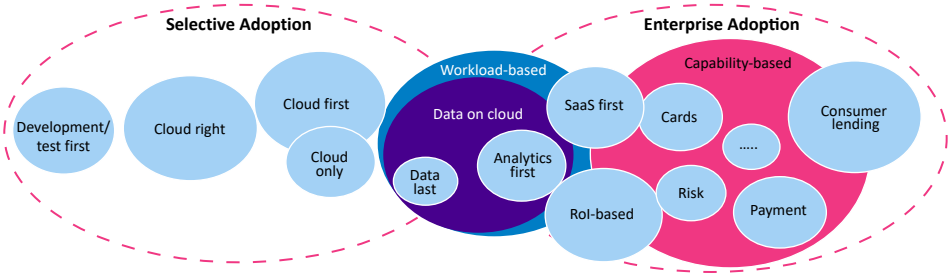
Heading to the Cloud: A strategy for banks and financial institutions

Abstract

Cloud computing is rapidly transforming businesses across several dimensions, resulting in as-a-service options and innovative business models. With a few exceptions, the banking and financial services industry has been relatively slow in cloud adoption. As a corollary, incumbent financial institutions have lagged behind in acquiring and monetizing new capabilities and embracing innovative business models. Slow cloud adoption in the BFS industry can be attributed to the complex application landscape, legacy systems, cybersecurity challenges, and regulatory compulsions. Having said that, the strategic and operational benefits of cloud technologies are now driving banks to explore adoption, albeit cautiously. Though the extent of adoption and maturity vary by segment and individual organizational priorities, many banks are leaning toward a hybrid and multi-cloud strategy. This white paper discusses existing cloud models and presents two systematic approaches – a workload-based approach and a capability-based approach – for financial institutions.

Cloud models: The power of the right combination

The banking and financial services industry is seeing a sudden spurt in cloud initiatives. Strategic cloud benefits such as new business models, business and operational agility, reduction of the total cost of ownership (TCO), and product innovation coupled with tactical benefits such as operational efficiency, scalability, technical debt management, and business continuity planning (BCP) and disaster recovery (DR) are driving adoption. However, the industry has embraced a gradual and measured approach to cloud adoption. The extent, maturity, and adoption models vary by size, segment, geography, line of business, and overall business strategy. The overall transformation encompasses a hybrid mix of some or all the different models (see Figure 1). While some models have the ability to coexist with other models (capability-based migration with a software-as-a-service or SaaS-first approach), others (cloud-right or cloud-only) do not, which means that financial institutions must define the right mix before embarking on implementation.



Paradigm	Model	Description
Selective Adoption (aggressive or measured)	Cloud first	New development including both old and new workloads
	Cloud right	Best fit for requirements – right service model and right deployment
	Return on investment (RoI)-based	Enterprise-wide cloud foundation but RoI-driven movement
	Cloud only	New business establishment
	Data last	Data subsets on public cloud but major part of data on-premise
	Development/test first	Development/test environment (x86 based) to flatten the cost bubble
Enterprise Adoption (systematic approach)	Workload-based	Workload patterns like OLTP, OLAP, portal, COTS, analytics, transactions analytics
	Capability-based	IT and business strategy alignment to build, transform, consume functional capabilities

Figure 1: Cloud Adoption Models

A systematic approach to cloud adoption in financial services

Once cloud adoption becomes mainstream in the banking and financial services industry, we expect two broad approaches – workload-based approach and capability-based approach – to emerge and dominate. IT or technology compulsions will drive the former, while both business and IT priorities will drive the latter approach. For banks and financial institutions, we envisage the long-term infrastructure landscape to evolve into a strategic, hybrid, and/or multi-cloud environment, with the ability to accommodate varied workloads, align with enterprise-wide business processes and applications, and support futuristic, ecosystem banking models. To achieve this, banks and financial institutions will need to consider a blend of both approaches.

Workload-based approach

Primarily driven by IT organization and strategy, enterprise architecture, and technology lifecycle management, the objectives of a workload-based approach revolve around cost optimization, technology debt reduction, faster deployment, and operational agility.

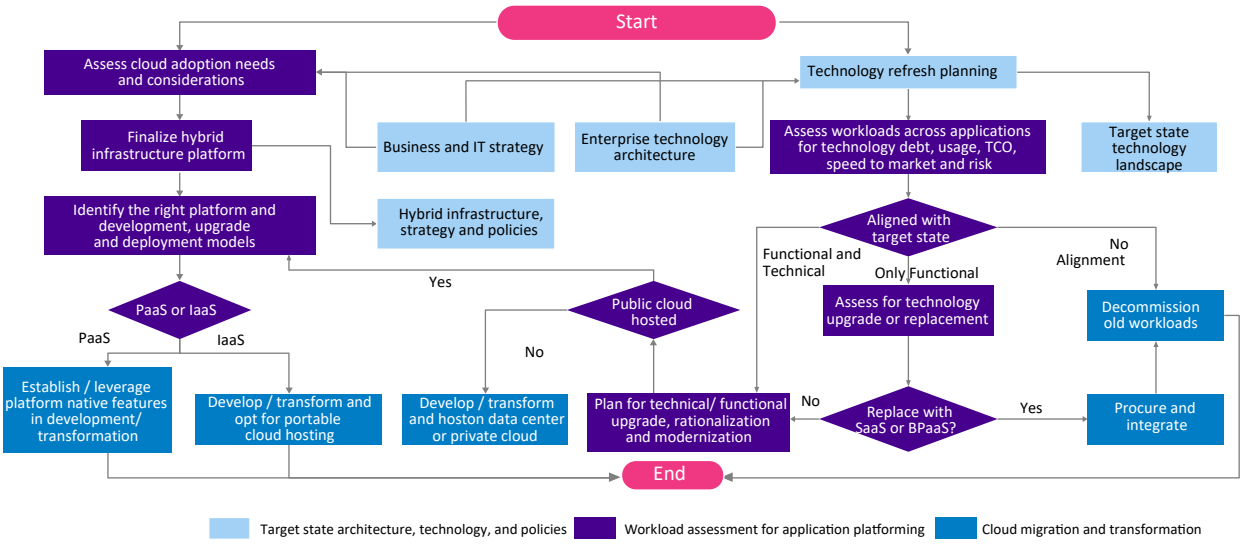


Figure 2: Workload-based Approach

The workload-based approach includes the following activities (see Figure 2):

Target state architecture, technology, and policies

- Establish enterprise technology architecture (ETA) and define cloud platform strategy.
- Stipulate policies for information security, privacy, and data management.
- Lay down guidelines for choosing the right deployment and service models.

Workload assessment for application platforming

- Build a business case for technology refresh or cloud adoption at the portfolio or enterprise level.
- Assess workloads for alignment with the ETA, cloud strategy, and transformation objectives.
- Identify replacement options for functional rationalization or architectural modernization if the business case and funding permits.

Cloud migration and transformation

- Consider a SaaS, business process-as-a-service (BPaaS) or a fintech platform if it promises to be faster or more cost-effective.
- Select technologies that align with the cloud strategy.
- Choose the right cloud service and deployment model.
- Consider workload retirement and decommissioning.

The workload-based approach ensures a systematic progression toward cloud adoption. However, this approach is centered on cost efficiency and speed-to-market. The concept of moving workloads to a different, albeit modern and agile, platform but without delivering new business capabilities could weaken the business case.

Capability-based approach

Given ecosystems are quickly emerging as the cornerstone of future growth across sectors, including banking and financial services, organizations that do not prepare for this disruption risk value erosion.[1] We envisage future financial institutions to embrace innovative ecosystem models and evolve into future-ready banks delivering purpose-driven banking, with a focus on driving sustainable growth. To realize this vision, banks will need to build cloud-based, digital capabilities that underpin collaborative ecosystems. And here's where the capability-based approach comes in – both business and IT strategies drive this approach, which means the focus is also on acquiring new future-ready capabilities.

The capability-based approach includes the following activities (see Figure 3):

Ecosystem blueprint

- Define an ecosystem strategy that aligns with the business strategy.
- Create a target state capability blueprint, IT strategy, and enterprise technology architecture (ETA).

Capability segmentation

- Assess strategic alignment of business and IT capabilities with reimagined ecosystem business models
- Develop and refresh policies and capabilities across areas like information security, privacy, data management, and so on.
- Create guidelines for choosing the right cloud deployment and service models.
- Identify new integration needs and build a comprehensive ecosystem fabric.

Implementation roadmap

- Consider SaaS, BPaaS, or a fintech option for non-differentiated and consumable capabilities.
- Plan for technology refresh and standardization.
- Assess and plan for functional rationalization or architectural modernization needs for the retained workloads.
- Choose the right cloud and deployment model before proceeding with deployment.
- Decommission retired workloads.

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[1] American Banker, Ecosystems: The Cornerstone of Future Banking, October 2020, Accessed December 2020, https://www.americanbanker.com/whitepaper/ecosystems-the-cornerstone-of-future-banking

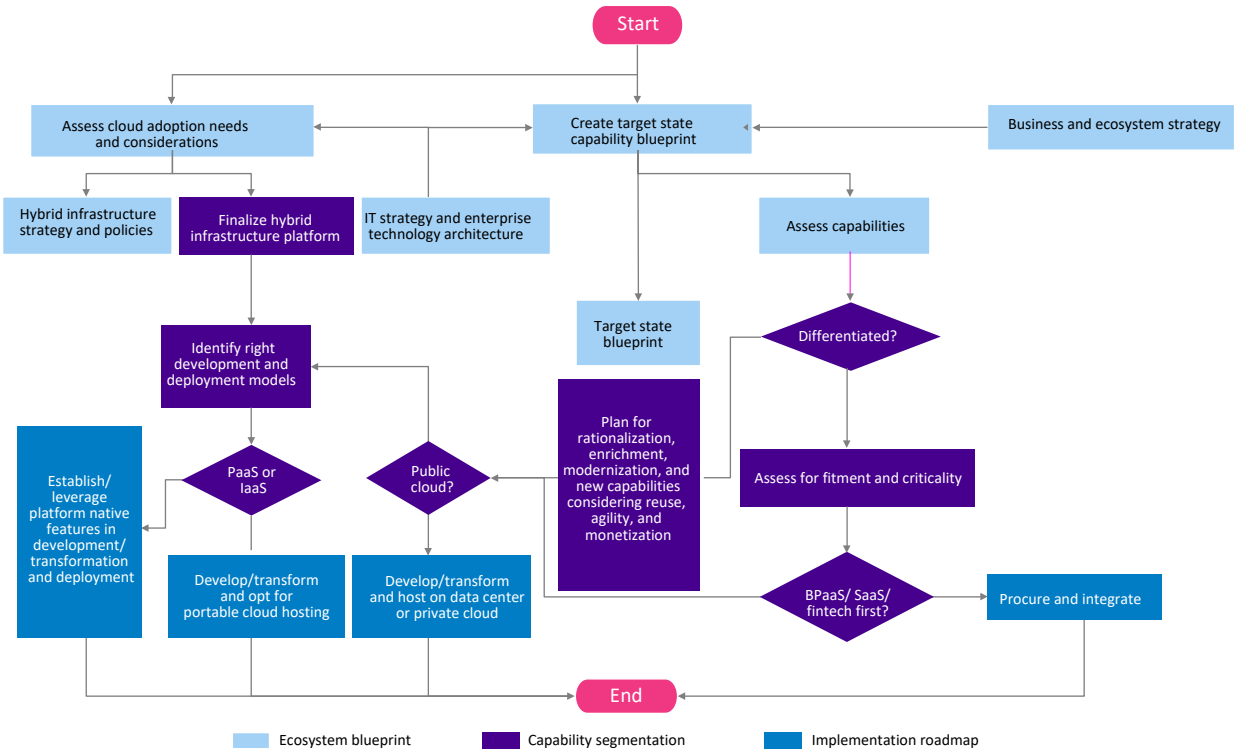


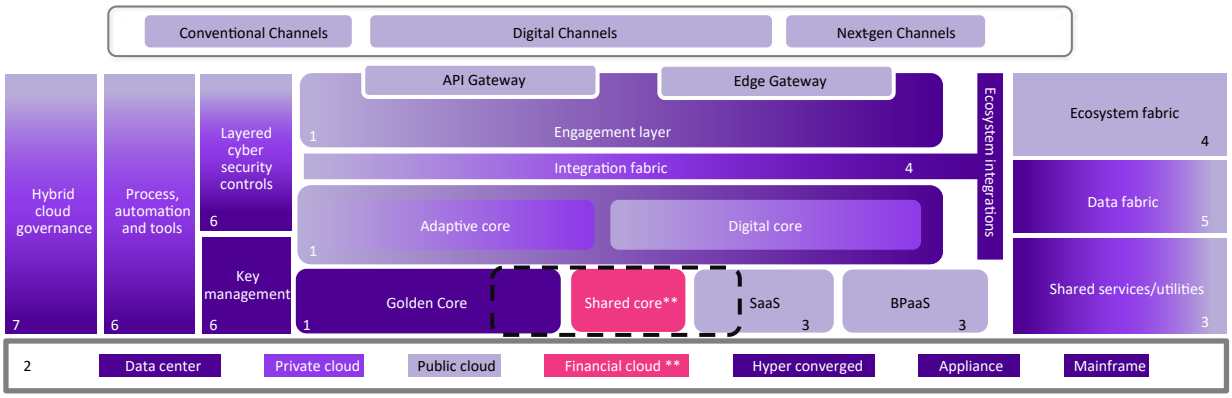
Figure 3: Capability-based Approach

Laying a hybrid cloud foundation for ecosystem banking models of the future

In our view, the future banking model will evolve into a cross-industry ecosystem with customer journeys going beyond banking value spaces. Products and services will be bundled along with those of other partners in the ecosystem. Application programming interface (API) frameworks will be leveraged to integrate into the ecosystem and exchange capabilities and data on marketplace platforms.

Since financial institutions operate with a complicated mix of legacy systems, commercial off-the-shelf (COTS) products, bespoke applications, and cloud-native applications, there is no one-size-fits-all approach to cloud adoption. Given that the long-term cloud environment will need to be an ecosystem-ready landscape, banks must build on the short-term hybrid infrastructure through transformation programs and multi-cloud strategies to address the divergent needs of enterprise workloads and ecosystem business models and capabilities. We envisage the target cloud model in the financial services industry to be a hybrid model – a short-term, workload-based strategy to accommodate varied workloads and align with processes and applications and a long-term capability-based approach to build new, future-ready capabilities (see Figure 3).

[2] TCS, Living and Wellbeing Post COVID-19: Opportunities for Financial Services, July 2020, Accessed November 2020, https://www.tcs.com/living-wellbeing-banks-insurers



** Likely to evolve in the longer term – more than three years

1 Core platforms
2 Digital infrastructure fabric
3 Service models
4 Ecosystem fabric
5 Data fabric
6 Tooling and automation
7 Governance

Figure 4: Proposed IT Landscape for Future Ecosystem Business Models

Figure 4 depicts the target IT landscape and the orchestration of capabilities or a group of capabilities required for future ecosystem banking models. Successful transition to the target state will, however, require traditional banks and financial institutions to consider certain aspects and implications.

Classification of functions

An audit of the existing infrastructure to identify the functions, applications, and processes that can be migrated will typically result in three categories:

- Core functions that will need to be retained in data centers or a private cloud
- Non-core functions that can be migrated to public clouds
- Functions that will need a hybrid approach

Instead of hosting non-core capabilities on a public cloud, banks and financial institutions could also consume them from third parties through as-a-service platforms, utilities, fintech services, and marketplaces.

Digital infrastructure fabric

Financial institutions must build a digital infrastructure layer comprising a mix of private cloud, public cloud, and data center platforms such as hyper-converged platforms, appliances, and mainframe systems to enable a dynamically optimized data center. Care should be taken to incorporate the right digital components as this fabric is the core of the future IT landscape and key to delivering business value.

Producer-consumer paradigm (service model)

With cloud models gaining traction, financial institutions' producer-consumer models will see a shift. A collage comprising as-a-service models — BPaaS models for processes like loan servicing and collections and SaaS models for non-differentiated functions like customer relationship management and marketing – and API-backed models for capabilities owned and hosted within the data center may well become the norm.

Ecosystem fabric

An integration fabric is critical to accommodating diverse and complex integration requirements and enabling the exchange of data, services, and transactions among different stakeholders in the ecosystem. The integration layer will help enable a single, dynamic, and scalable architecture that integrates applications, data, services, and processes to deliver a flexible, seamless, and secure distributed ecosystem. Such a fit-for-purpose ecosystem fabric that integrates capabilities from ecosystem players will be a key component of the architecture of future-ready banks and financial institutions. Establishing a robust ecosystem fabric is critical to realizing the benefits – new revenue streams through white-labeling and monetization of functionalities and services, product innovation, and personalized customer service – of ecosystem play.

Data fabric

A unified data integration and management platform that takes care of all requirements right from data gathering to consuming insights along with robust governance must be part of the architecture. The platform should have the capability to distribute data management workloads across the hybrid cloud environment and meet the data insights needs of the bank as well as the ecosystem partners.

Tooling and automation

Banks and financial institutions will need to review operating guidelines for business and IT as well as controls across security and procurement in the context of hybrid cloud migration and ecosystem models. Existing tools and workspaces will need to be assessed and upgraded or modified as needed.

Governance

Effective hybrid cloud governance policies spanning planning, monitoring, enforcement, and accountability will need to be established. This will help ensure implementation in compliance with laid down policies and procedures with adequate controls.

Act now or be left behind

Migrating to a hybrid cloud or multi-cloud environment is a complex exercise in banks and financial institutions, with benefits accruing over a multi-year horizon. Contextual knowledge of the existing systems, the operational environment, product and service portfolios, as well as organizational culture and practices, is critical for hassle-free transformation. Effective execution, transition management, and seamless migration to a cloud-based, future-proof architecture will require broader capabilities. Banks and financial institutions may have to consider forging the right partnerships for the expertise required for this complex transformation journey.

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