

where does your tech ecosystem live?

A Guide to In-House Versus Cloud-Based Infrastructure

Ensuring you pick the “right” type of technology infrastructure for your financial institution and accountholders – now and in the future – starts with fully understanding your options.

a strategic decision, not a technical one

As you modernize your technology stack to meet emerging challenges and position yourself for future growth, one of your most consequential strategic decisions is where your technology ecosystem should reside. This is no longer a simple binary choice between on-premises and the cloud.

Banks and credit unions now operate across a spectrum – from fully in-house environments, hosted models, and private cloud architectures to fully cloud-native platforms. Each entails fundamentally different implications for how the business operates and evolves.



Your technology ecosystem is no longer just infrastructure, it's a strategic enabler of growth and change – or an obstacle.



the future-ready imperative

This decision is increasingly defined by whether a financial institution is truly future ready. Baseline accountholder expectations have been reset by real-time service, seamless digital experiences, and continuous innovation – especially for Gen Z, which represents the future of your organization’s viability.

Banks and credit unions must also respond to ongoing regulatory change, competitive disruption, and rising integration demands. In this environment, technology choices determine not just efficiency, but the ability to adapt at speed in order to survive.



The question is no longer, “Does it work?” It’s, “Can it evolve fast enough?”

four models, unequal trade-offs

Each deployment model – on-premises, hosted, private cloud, and public cloud – reflects a different balance of control, scalability, cost structure, risk ownership, and innovation velocity.

- **Traditional in-house and hosted models** favor control and familiarity, but often introduce constraints on speed and scalability.
- **Private cloud** offers a more balanced path, combining flexibility with regulatory alignment.
- **Public cloud** enables the highest levels of scalability and innovation, but requires a shift toward more open, continuously evolving operating models.

These are not neutral differences – they shape how quickly and effectively your organization can respond to change.



Every architecture decision either increases agility – or compounds friction and latency.

the side-core trap

In response to these pressures, many organizations attempt to balance competing priorities by introducing non-integrated side cores alongside their existing systems. While this can appear to accelerate innovation in the short term, it often creates structural complexity that slows the organization over time.

This type of fragmented architecture leads to duplicated logic, inconsistent data, brittle integrations, and increasingly disconnected accountholder experiences. What begins as a workaround can become a long-term constraint, making change harder, not easier.



Side cores add speed at the edge – but friction at the center.

legacy versus foundational: when stability becomes latency

Legacy platforms are often seen as stable and reliable, but it's important to distinguish between a core that is simply being maintained and one that is actively evolving.

A core that is not being meaningfully advanced – where customization has accumulated without a clear path to modernization – can become a source of structural inertia. As complexity deepens, even routine changes grow slower, riskier, and more expensive, ultimately limiting an organization's ability to respond.

By contrast, a foundational core that continues to be invested in and modernized – with clear pathways to integration, extension, and an option to eventual transition – can remain a viable strategic asset. The difference lies not in age, but in trajectory. Without ongoing evolution, accumulated complexity creates operational friction. However, with deliberate advancement and open integration paths, that same foundation can support forward movement rather than constrain it.



Legacy doesn't fail loudly – it slows you down quietly. The difference is whether your core is standing still – or actively moving forward.

choosing for the future, not the present

While there is no single “correct” model for all banks and credit unions, the framing must be forward-looking. The right choice depends on regulatory requirements, strategic ambition, and starting point

Decisions should prioritize simplicity, scalability, and continuous adaptability, not just control or short-term convenience. Banks and credit unions that optimize for today’s tactical situation risk locking themselves into models that can’t support where they need to be tomorrow.



The biggest risk is not the wrong choice today – it’s limiting your ability to change tomorrow.

how to use this matrix

The following matrix provides a structured comparison across key dimensions – architecture, scalability, cost, risk, operations, and innovation – to support clear, fact-based evaluation of these trade-offs.

Its purpose is to align stakeholders in your financial institution around a shared understanding of what each model enables – and what it constrains – so that you can make decisions with long-term resilience and competitiveness in mind.



Where your infrastructure lives today will shape how you compete tomorrow.

Dimension	On-Prem	Hosted	Private Cloud	Public Cloud	Notes/Trade-Offs
Architecture	Monolithic, Tightly Coupled	Same Architecture Hosted	Modernized, Modular	Cloud-Native Micro-services	Shift from customization to configuration/ API extensibility
Scalability	Vertical, Limited	Moderate	High	Elastic Horizontal	Cloud absorbs peak demand efficiently

Dimension	On-Prem	Hosted	Private Cloud	Public Cloud	Notes/Trade-Offs
Availability/Up-time	Depends on Ops Maturity	Improved via Vendor	High SLA	Very High SLA	Check SLA definitions carefully
Disaster Recovery (DR)	Manual DR Sites	Vendor-Supported DR	Multi-Zone	Multi-Region Automated	Cloud improves RPO/RTO
Performance	Local Optimized	Stable Hosted	Regionally Optimized	Globally Optimized	Data locality matters
Security Model	Full Responsibility	Shared	Shared	Shared Responsibility	Cloud vendors invest heavily in security
Compliance	Internal Audits	Vendor-Supported	Shared	Vendor-Certified	Map to regulatory expectations
Data Residency	Full Control	Vendor-Managed	Region-Controlled	Region-Based	Verify cross-border flows
Customization	Deep Code-Level	High	Moderate	Config-Driven by Open Architecture	Upgradeability vs. flexibility trade-off
Upgrade Cadence	Infrequent	Periodic	Regular	Continuous	Cloud enables continuous delivery
Integration	Legacy/Batch	Mixed	Modern APIs	API/Event-First	Faster fintech integration in cloud
Ecosystem	Limited	Limited	Growing	Extensive	Marketplace accelerates innovation
Time to Market	Slow	Moderate	Fast	Very Fast	Cloud best for rapid launches
Observability	Custom Tools	Mixed	Native Tool-ing	Advanced Built-In	Better telemetry in cloud
Operations	Heavy Internal	Shared	Shared	Vendor-Led	Frees internal teams
Cost Structure	CapEx Heavy	Mixed	OpEx	Usage-Based	Total Cost of Ownership (TCO) varies by growth

Dimension	On-Prem	Hosted	Private Cloud	Public Cloud	Notes/Trade-Offs
Vendor Lock-In	Low	High	Moderate	High	Mitigate via open standards
Resilience	Depends on Infrastructure	Improved	High	Very High	Cloud includes DDoS protection
Fraud/AML	Batch-Based	Mixed	Improved	Real-Time ML	Cloud enables real-time detection
Payments Connectivity	Direct Managed	Partially Managed	Strong	Pre-Integrated	Cloud simplifies scheme integration
Core Features	Mature but Rigid	Same	Modernizing	Modern	Map edge-case requirements
Analytics	Batch ETL	Improved	Near Real-Time	Real-Time	Cloud enables data lakes
Digital Channels	Custom	Improved	Modern	SDK-Driven	Faster omnichannel rollout
Support Model	Internal	Vendor	Vendor + Internal	Vendor-Led 24/7	Check escalation paths
Regulatory Response	Slow	Moderate	Faster	Fast	Cloud faster for common mandates
Pen Testing	Internal	Shared	Shared	Vendor-Led	Coordinate testing scope
Sandbox/ Testing	Limited	Improved	On-Demand	Fully On-Demand	Boosts dev velocity
Incident Management	Internal	Shared	Shared	Vendor	Ensure RCA + visibility
Change Management	Slow Cycles	Moderate	Agile	Continuous	Align with risk appetite
Business Continuity	Facility-Dependent	Improved	Strong	Cloud-Native	Test end-to-end
Innovation Velocity	Slow	Moderate	Fast	Very Fast	Cloud enables faster change
TCO (5 – 7 yrs.)	Predictable but Aging Costs	Moderate	Optimized	Efficient Scaling	Model full lifecycle costs

decision criteria

Strategic Fit

- **Growth and Agility**

Public cloud infrastructure is preferred for rapid time to market, continuous delivery, and access to a broad partner ecosystem. Hosted models offer incremental improvement, while traditional on-premises cores typically lag due to release and infrastructure constraints.

- **Control and Specialization**

On-premises foundational cores – and to a lesser extent, hosted foundational cores – remain strongest where deep product customization, proprietary processes, or strict regulatory constraints require bespoke core logic and full control over infrastructure and execution. Ensure that the provider continuously invests in the core as a foundational asset with a clear path to modernization, rather than letting it become a dead-end legacy system.

Risk and Compliance

- **Data Residency/Sovereignty**

If requirements are strict, on-premises and private cloud provide the highest degree of control. Hosted and public cloud models require careful validation of region guarantees, backup locality, and cross-border data flows.

- **Auditability**

Ensure robust evidence packs, logging, access governance, and model risk management (especially for ML-driven capabilities). Public and private cloud providers often deliver stronger out-of-the-box tooling, while on-prem and hosted models rely more heavily on internal processes and integrations.

Financials

- **Total Cost of Ownership (TCO) Model**

Include infrastructure refresh cycles, staffing, licenses, DR sites, migration costs, and ongoing operational overhead for on-prem and hosted models. For private and public cloud cores, be sure to assess subscription pricing, usage-based costs (compute, storage, API calls), data egress, and premium support tiers.

- **Unit Economics**

Evaluate transactions per second, storage growth, API consumption, and peak-to-average workload ratios. Public cloud infrastructure typically provides the most efficient scaling economics, while on-prem and hosted models often involve step-function cost increases.

next steps: from choice to direction

Ultimately, the question of where your tech ecosystem lives isn't just about selecting a deployment model – it's about defining the direction of your financial institution. The trade-offs between control, scalability, and innovation are real, but the more important consideration is whether your chosen path supports continuous evolution over time.

What's increasingly clear is that the future will not be shaped by fragmented architectures or short-term workarounds. Organizations that succeed will be those that prioritize cohesive, adaptable foundations – environments that can evolve without introducing complexity, and scale without losing control.

At the same time, it's important to challenge one of the most persistent industry myths: that foundational infrastructure is somehow in decline. In reality, the question isn't whether foundational cores are disappearing, but how they're evolving – and how effectively financial institutions are leveraging them as a bridge to the future.

Today, the available infrastructure choices roughly fall into three broad camps. Each reflects a different philosophy about risk, investment, and control.

- 1. Technology without a long-term future.**
- 2. Bolt-on technology that's not fully integrated.**
- 3. Modern technology with built-in optionality and a future-proof path**

Every financial institution is already operating within one of these models, whether by design or by default. The question isn't whether change is needed, it's whether the current foundation can support it. To explore this decision in more depth, [read our follow-on white paper](#) that provides a strategic overview of the current state of financial technology infrastructure.

bridge the gap between legacy systems and fintech innovation

Discover a [single, adaptable, cloud-native platform](#) that connects core banking, APIs, and digital services – and lets you transition seamlessly over time.

For more information about Jack Henry, visit jackhenry.com.