IDC PERSPECTIVE

Mainframe Still Plays a Critical Role in Financial Services

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: Mainframe Modernization

The mainframe is one of the financial services industry's secret weapons. Among all the discussions of cloud and AI, the mainframe continues to serve as the loyal soldier, ensuring the institution is operating in a secure, scalable, and resilient manner. Mainframe modernization isn't solely about moving applications off the platform onto servers or cloud. Some workloads are best suited to running on this powerful platform, but it must continue to evolve to extend its benefits.

Key Takeaways

- The financial services mainframe processes the majority of transactions like payments worldwide. This is one of the reasons that the financial services industry continues to operate more mainframes than any other industry.
- Given the introduction of technologies like cloud and AI, there are good reasons to "modernize" the mainframe platform. In fact, it would be arguably foolish to allow the mainframe to die a slow heat death while it could be supporting innovation.
- In this document, IDC Financial Insights details a number of mainframe modernizations alternatives, some of which do include moving applications to non-mainframe platforms. But in many cases, modernization involves updating/upgrading the mainframe to bring its benefits of security, scalability, and resilience to newer technologies and business objectives.

Recommended Actions

- Institutions should perform an audit of workloads against the defining characteristics of the mainframe. Those that match should be considered "immovable," at least with respect to other workloads.
- Financial institutions should take an almost actuarial approach to costs. While the cost to operate mainframes is high, just moving to cloud may not reduce the real costs when compared with the benefits of remaining on mainframe for some applications.
- Data is playing an increasingly important role in mainframe discussions, driving modernization to better manage and secure data.
- The mainframe will continue to play a vital role in the institution's digital infrastructure. Institutions need a partnership strategy with both the mainframe and cloud providers that acknowledges and supports a digital infrastructure that supports mainframe and non-mainframe resources.

Source: IDC, 2025

March 2025, IDC #US52951525

SITUATION OVERVIEW

In the midst of the migration of applications and workloads to cloud, the mainframe platform continues to dominate the financial services industry. IDC Financial Insights estimates that while 70%+ of Fortune 500 companies currently use the mainframe in their operations, that number is over 90% in the financial services industry (banking, insurance, capital markets).

Any time a consumer purchases a latte, buys a mobile phone, or pays for movie tickets at the cinema, that transaction is almost guaranteed to be processed by two or three mainframes at the acquiring company, the payment processor, and the cardholder's bank. Mainframes support over 95% of all noncash transactions worldwide.

IDC Financial Insights doesn't see any significant shift away from mainframe *for certain workloads.* And in fact, when financial institutions consider mainframe modernization, they look at several options that don't include public cloud.

Why Is Mainframe Still So Popular?

The prevalence and robustness of mainframe in financial services institutions come down to a few critical characteristics:

- **Resilience.** The mainframe has a proven track record of uptime for critical workloads. While cloud technology has come close to the same resiliency, it hasn't necessarily surpassed that important quality.
- **Speed.** Considering time-critical workloads like payments, it makes sense that the power and scalability of the mainframe have become defining characteristics of the platform.
- **Security.** The mainframe sets the standard for secure operations, particularly for data security, supporting privacy regulations.
- **Scale.** Mainframes were built, and continue to evolve, to support massive operations, including multi-concurrent user and high-volume applications, like payments.

While cloud does represent a viable alternative to mainframe for some applications, it is these characteristics that have slowed down and will slow down the migration of some workloads from mainframe to cloud.

In IDC Financial Insights' November 2023 *North America Banking Technology Survey,* 20% of responding banks cited they would still be running 50% or more of their workloads on dedicated, on-premises mainframes through 2025.

Why Modernize the Mainframe?

Although the mainframe continues to be a critical resource in the institution's infrastructure, that doesn't mean that the platform is standing still in its evolution. The technological advances that have happened over the past decade, including cloud and AI, are driving a demand to ensure that the mainframe can continue to play its vital role in the organization. This has led to an arguably vague term — *mainframe modernization.* The reasons an institution would consider modernization include, but are not limited to:

- A new technology or capability, like AI (especially a fundamentally game-changing variant like generative AI), can drive the institution to update the mainframe, or components of it, to support the new technology.
- Given the sensitivity financial institutions have to data (security, privacy, governance, etc.), new applications will be vetted based on the sensitivity of the data they produce or consume. This may drive some modernization of the mainframe to support the new workloads and inherit the characteristics of the mainframe that make it robust.
- The cost of mainframe operations is often cited, justifiably, as a reason to modernize the platform. This should involve a comprehensive analysis of the challenges on the current platform against an honest appraisal of the cost to move off the mainframe for any particular workload. Cost, in this case, also should take into consideration the risk of diminishing any of the defining characteristics of the mainframe before a sound decision can be made.
- Talent for mainframe operations and development is also a hurdle for every financial institution that operates the platform. In particular, the need for COBOL development to maintain and, in some cases, create new applications is stretching the institution's ability to find and retain staff.
- Adjacent to the talent gap, modernization of the mainframe is sometimes needed to support newer development environments while remaining on the mainframe as an operational platform.
- Considering the overriding concern of data sensitivity, mainframe modernization is done to enable hybrid environments where the institution wants to leverage cloud-based compute while maintaining data control in an on-premises environment.

These are just a few reasons financial institutions will consider mainframe modernization to ensure future secure and scalable operations.

Mainframe Modernization Approaches

IDC defines a few approaches to mainframe modernization that institutions consider:

- Modify the existing mainframe to support private cloud and remain on premises with existing workloads.
- Upgrade components of the mainframe to support AI. This isn't always combined with work to "cloud enable" the mainframe, but rather the work could be done to improve data access and speed to handle the unique needs of an enterprise AI capability.
- Modernize mainframe applications to run on private or public cloud. If they are not run on an on-premises platform, these applications would migrate to cloud as an infrastructure-as-a-service environment.
- Migrate applications to run on public cloud. This is a software-as-a-service model that takes the workload off the mainframe altogether.
- Replace mainframe workloads with "packaged" applications that are engineered to run on cloud infrastructure, whether as IaaS or SaaS, or remain on an on-premises, cloud-ready mainframe platform.

There will also be hybrid approaches that combine or overlap many of the previously mentioned models. In truth, larger institutions will use all or most of these approaches depending on the workloads involved and the specific needs of the lines of business or IT group.

Mainframe Investments Continue

IDC Financial Insights estimates that financial institutions will spend almost $2.3 billion globally in 2025 on mainframe platforms. While investment growth will be slow (less than 10% annually), it is nonetheless still growing.

This estimate includes the normal year-to-year increases in maintenance of existing mainframe platforms, as well as the spend on modernization projects to continue to evolve the mainframe to meet future demands. This last point is the biggest driver to continued spend growth.

ADVICE FOR THE TECHNOLOGY BUYER

This document confirms that the mainframe platform will continue to be a critical resource for financial institutions worldwide. And there are compelling reasons to continue to invest in the mainframe, not for all workloads but for workloads that benefit from the security, scalability, and resiliency inherent in the platform.

Every institution should have a mainframe strategy that includes:

- **An audit of workloads against the defining characteristics of the mainframe.** Those that match should be considered "immovable," at least with respect to other workloads.
- **An actuarial approach to costs.** While the cost to operate mainframes is high, just moving to cloud may not reduce the real costs when compared with the benefits of remaining on mainframe for some applications.
- **A partnership strategy with both the mainframe and cloud providers that acknowledges and supports a digital infrastructure that supports both.**

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- *IDC FutureScape: Worldwide Retail Banking 2025 Predictions* (IDC #US52634924, October 2024)
- *2024 Top 10 Trends Driving Technology Investments in Financial Services Worldwide* (IDC #US51743624, March 2024)

Synopsis

This IDC Perspective details how mainframes still play a critical role in financial services. Any time a consumer purchases a latte, buys a mobile phone, or pays for movie tickets at the cinema, that transaction is almost guaranteed to be processed by two or three mainframes at the acquiring company, the payment processor, and the cardholder's bank. Mainframes support over 95% of all noncash transactions worldwide. IDC Financial Insights doesn't see any significant shift away from mainframes for certain workloads. And in fact, when financial institutions consider mainframe modernization, they look at several options that don't include public cloud.

"Mainframes can be considered the beating heart of every financial transaction worldwide," says Jerry Silva, program vice president for IDC Financial Insights. "But it will only continue to serve if the institution makes intentional choices about making sure it continues to evolve through modernization strategies."

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International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets. With more than 1,300 analysts worldwide, IDC offers global, regional, and local expertise on technology, IT benchmarking and sourcing, and industry opportunities and trends in over 110 countries. IDC's analysis and insight helps IT professionals, business executives, and the investment community to make fact-based technology decisions and to achieve their key business objectives. Founded in 1964, IDC is a wholly owned subsidiary of International Data Group (IDG, Inc.).

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