The next-generation platform for banks

Securing superior customer experience for the digital age

IBM Institute for Business Value

Getting to the core of the matter

The financial crisis of 2008, along with relentless competitive and cost pressures, have forced innovative ways of making the banking experience more compelling for customers. With so much attention on payments, analytics and security, among other things, the systems on which they run are rarely seen as interesting or “cool.”

Mainframes: modern platform for innovation

Sophisticated banking requires sophisticated computing systems. But which systems offer the greatest chance for success? Many banks are discovering that the answer can be found within their on-premise data centers – the mainframe computer.

Mainframes have become a modern platform for innovation. When operating in a hybrid cloud environment, mainframes provide cost flexibility, scalability, agility, sophistication and unmatched security. And they support innovation, business transformation and new types of monetization. The power of mainframe computing is being rediscovered. Specifically, in a recent 2017 survey of banking executives, we found that:

- 50 percent said they believe hybrid cloud – and the systems that underpin it – can significantly lower the cost of IT ownership
- 47 percent said they believe mainframe-enabled hybrid cloud can improve operating margin
- 47 percent said they believe dual-platform hybrid cloud can accelerate innovation.[1]

While innovation and improved profitability are critical success factors for banks, it is equally important that they maintain business as usual. There can be no interruption to the efficient processing of massive volumes of daily banking transactions. In fact, 92 of the world's top 100 banks rely on mainframes because of their ability to process huge volumes of transactions efficiently.[2] For example, mainframes process more than $7.7 trillion USD in credit card payments annually and support 29 billion yearly ATM transactions (another $1.7 trillion USD).[3] The newest generation of mainframe processes an astonishing 12.5 billion transactions per day, against fully encrypted data.[4]

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A competitive advantage

For banks to compete effectively requires deep predictive analytics and cognitive capabilities continuously producing deep insights about customer needs, preferences and intentions. Unfortunately, such insights are highly perishable, as these factors change constantly. Meeting the individualized needs of customers requires speed and agility in producing and acting upon insights.

This dynamic gives traditional banks an advantage over emerging competitors. Traditional banks have the size and organizational breadth to sustain deep capabilities around mainframe computing. And mainframes are perhaps the only systems capable of running both transactions and analytics simultaneously without adversely affecting the performance of either.

Innovative banks are outfitting their mainframes with modern analytical tools, such as machine learning, designed to deliver in-place analysis of valuable data without driving up cost. And, since core banking systems are touchpoints for every customer interaction, additional mainframe capabilities enable predictive analytics to be baked into 100 percent of all transactions without any effect on service level agreements (SLAs).

Banks have routinely pushed this sensitive data to data warehouses or cloud platforms for analysis. Indeed, one large international bank took this approach to analyze card data for fraud patterns. However, its transaction volume was so large that it required two days to copy and analyze the data – by which time the damage from fraudulent activity had already been done. In response, the bank adopted a new hybrid cloud approach to shift the analysis right to the mainframe, shortening the fraud detection cycle to less than 10 minutes, saving millions of dollars a year and increasing customer trust.[5]

Not only does data movement limit the effectiveness of insights, it drives up costs unnecessarily: the cost of copying one terabyte of data per day over a four-year period has been estimated at approximately $10 million USD.[6] Analyzing data directly on the mainframe enables near real-time action on insights and higher quality decisions at lower cost.

Obtaining a truly 360-degree view of clients requires analyzing a variety of data types, not just data from core systems, but also from other sources, such as social media, geospatial, and public databases. Using the public component of hybrid clouds, mainframes can federate analysis across multiple, disparate systems without requiring data to be moved.

Protecting customer trust

Cyber criminals are at war with banks. Our latest analysis of security incidents showed that in 2016, the financial services sector was attacked more than any other – experiencing 65 percent more attacks than the average organization across all industries.[7] Nothing kills customer trust faster than loss of private data, or a highly publicized systems breach.

Data is the new perimeter; there can be no compromises when it comes to the security of core systems data, as this is where the foundation of trust begins – and ends. The most effective way to keep that perimeter secure is by encrypting all data, all the time, and maintaining encryption keys in a place where they cannot be compromised.

For most systems, encryption is a time-consuming, expensive process – so it is only performed selectively. But the latest generation of mainframes has been designed to allow encryption of everything, all the time, both data in-flight and at-rest with no application changes.

This easy-to-use and low-cost encryption capability is integrated with dedicated cryptographic co-processors and a key management system certified to the most stringent professional standards. It is no longer necessary to decide what and what not to encrypt. The mainframe delivers a vastly enhanced level of security, which is critical in the battle against cyber criminals.

Data becomes vulnerable when it is moved or copied outside of this zone of protection. No matter how well core banking systems and data are protected at the source, once data is taken off-platform for analysis or other purposes, it introduces additional, potentially incompatible and, arguably, weaker, security zones that must be managed. Avoid this issue by keeping data in place.

The foundation of trust begins – and ends – with data security.

Gaining agility and efficiency by focusing on workloads

Extracting more value from fewer resources is a key challenge.

For anyone designing a bank's IT architecture, extracting more value from fewer resources is a key challenge. For example, mainframe full-time employees (FTEs) as a percent of total IT FTEs remained constant at 5.5 percent in the past five years, while installed mainframe capacity per FTE increased by 75 percent.[8] Every new mainframe generation reduces total cost of ownership (TCO) by enabling more efficient management of capacity – a phenomenon unknown in the world of distributed systems.

Mainframe-based core banking is so vital to banks' operations that it is crucial that it is protected, directly controlled, and expanded to address the needs for optimized customer loyalty and unbreakable trust. Working outward from this base, continue moving toward agility and efficiency by taking full benefit of hybrid cloud-based services for other workloads.

Mainframes running core data are fully able to use application program interfaces (APIs) and micros-ervices to connect, integrate and work seamlessly with common processes and tools, as well as offer continuous data integrity in such a hybrid cloud environment.

Re-imagining your core

With advances in the mainframe technology, core banking operations are poised to do much more for banks than simply executing greater volumes of transactions. They can generate top-line growth through new insights, be an exclusive, impenetrable vault for critical data and processes and a means for improving efficiency at the bank.

So banks need to re-imagine core banking to extract greater value from core data:

- Use in-line, in-transaction analytics to achieve greater accuracy and speed in customer loyalty improvements and fraud reductions, as well as saving costs incurred by copying data.
- Maintain customer trust by limiting movement of critical data and fully utilizing pervasive encryption.
- Improve core systems efficiency through consolidation of what is differentiating and through connection to supporting services in a hybrid cloud configuration.

Core banking on the mainframe is foundational for hybrid cloud models increasingly adopted to optimize banking operations. Mainframe offers the benefit of innovating key systems combined with trusted, reliable legacy performance, applications and consistency. And mainframes can actually reduce the need for heavy capital expenditure.

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