

## Navigating the Cloud Frontier

Integrating mainframe data with the cloud



## Contents

**03** What's driving the growth of data analytics?

04 The benefits of mainframe data integration

**06** The challenges of integrating mainframe data

**07** Avoiding data integration pitfalls

**07** Developing a robust data integration strategy

**09** Unlock the full potential of your mainframe data

## What's driving the growth of data analytics?

Mainframes have long been the backbone of many large enterprises, serving as reliable and powerful record-keeping systems. But as businesses rapidly move to the cloud, there's a growing need to leverage mainframe data to advance analytics, Al initiatives, and application modernization.

So, how do you bridge the gap? The key is finding an integration approach that is efficient, secure, and non-disruptive. With the right tools, your mainframe data doesn't have to remain isolated. It can be a vital part of your business's cloud journey.

## Key reasons behind organizations' data analytics initiatives



Source: "The Role of Al and Mainframe Data in Enterprise Analytics" Survey conducted by Foundry, May 2024

# The benefits of mainframe data integration

Mainframes contain a wealth of valuable data, including transactional records, customer information, and operational metrics. This data is essential for driving business intelligence, enhancing decision-making, and improving customer experiences. By integrating mainframe data into modern cloud platforms, enterprises can fuel growth and innovation.



#### **Enhanced data analytics**

One of the main benefits of integrating mainframe data into cloud ecosystems is better analytics and AI capabilities. Streaming mainframe data into cloud data pipelines enables real-time analysis of transactional data, like orders, payments, deposits, claims, and inventory. This enables businesses to make datadriven decisions in the moment vs. after the fact.

For example, a retail company can analyze real-time sales data from its mainframe to optimize inventory management, predict customer demand, and enhance shopping experiences. Similarly, an insurance provider can use mainframe data to streamline claims processing, detect fraud more effectively, and improve customer service.

#### Streamlined application development

Integrating mainframe data into cloud platforms also elevates application development. Business intelligence, mobile, and webbased applications can deliver richer user experiences by tapping into live mainframe data and facilitating direct transactions with mainframe systems.

Imagine an online banking application where customers can check account balances, transfer funds, and view transaction histories in real time. By integrating mainframe data, the application can provide accurate and up-to-date information, enhancing customer satisfaction and engagement.

#### What mainframe data is most valuable? Main data types businesses want to leverage



Source: "The Role of Al and Mainframe Data in Enterprise Analytics" urvey conducted by Foundry, May 2024

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## The challenges of integrating mainframe data

#### **Complex data formats**

One of the significant challenges of integrating mainframe data into cloud ecosystems is dealing with complex data formats. Mainframes often store data in a mix of relational and non-relational databases, which can be difficult to map and merge with modern cloud platforms.

On top of that, mainframe data may use different character sets, code pages, and encoding systems, like EBCDIC instead of ASCII. These inconsistencies can lead to data compatibility issues, making it challenging to achieve seamless integration.

#### Geographical and temporal differences

Another challenge arises from the geographical and temporal differences in mainframe data. Mainframe systems may operate in different locations and time zones, resulting in data discrepancies and synchronization issues. Ensuring data consistency and accuracy across these variations requires robust data integration and management strategies.

#### Legacy systems and technical debt

Many enterprises rely on legacy systems and processes that aren't compatible with modern cloud platforms, making integration efforts more complex. Overcoming this technical debt requires significant investments in modernization efforts, including re-architecting applications and updating infrastructure.



## Avoiding data integration pitfalls

#### The comfort of the status quo

Over the years, many organizations have built up teams of skilled mainframe professionals who possess valuable insights into which data on their mainframes can be trusted for cloud initiatives. While relying on these experts is a straightforward strategy, the growing scarcity of such talent can lead to increased operational costs and create bottlenecks in scaling data integration efforts. The 2020-2023 Gartner mainframe spending report reveals an increasing share spent on skilled mainframe expertise. It highlights that surveyed companies are allocating more budget to personnel, even as they increasingly depend on external services like managed service providers (MSPs) to handle mainframe applications and workloads.

#### **Premature migration risks**

Some organizations may opt to fully migrate select mainframe applications and data to the cloud. This helps their cloud developers to more easily incorporate these assets into data-driven initiatives. Although this approach can deliver meaningful long-term benefits. The migration process can be highly complex and as costly as maintaining the status quo. Many attempts fail after months of effort. Even successful migrations often span several years and cost tens of millions of dollars.



## Developing a robust data integration strategy

Unlocking the hidden value of mainframe data for better analytics, AI, and application development requires an effective data integration strategy that covers various use cases. Whether it's managing coexistence complexities, meeting analytics and business intelligence (BI) needs, tackling data migration, or driving application modernization, a robust approach is key. Although each use case has its own unique requirements and challenges, they all share the same goal: simplifying data consumption and enhancing overall efficiency.

#### Coexistence

A surge of data, either through organic business growth or via mergers and acquisitions, can lead to data being scattered across various systems. In this situation data admins need to apply different processes for fetching data depending on the system it resides in, which is inefficient and can lead to errors. To address this, data integration for coexistence focuses on simplifying the data consumption experience. By employing bidirectional replication, businesses can maintain up-to-date information across multiple platforms, streamline administrative processes, and ensure they meet strict SLAs for workloads dependent upon it.





#### Analytics / Bl

Analytic workloads and BI applications require enormous datasets to deliver meaningful insights. In the past, IT could meet their data needs by batch copying from the mainframes, essentially dumping data. But with the push towards more data-driven decision-making, such batch jobs become more frequent. Data integration for analytics / BI focuses on bringing data closer to where data consumption occurs, lowering data transfer and storage costs, and making it easier to use.

#### Migration

Even when the risk and potential costs are high, migrating select mainframe applications and data to the cloud can make the most strategic and financial sense. A well-planned data integration approach greatly improves the likelihood for success by supporting a more gradual migration process. Bidirectional synchronization between the mainframe source data and the target environment for migration ensures consistency during the transition, minimizing potential disruptions to business operations reliant on this data, allowing IT to focus on necessary application adjustments.

#### **Application modernization**

When leveraging mainframe data for streaming platforms like Apache Kafka or Amazon Kinesis, IT focuses on achieving efficient real-time data processing, ensuring scalability, and maintaining fault tolerance. These platforms excel in quickly handling large data volumes with low latency, critical for applications that require immediate insights and rapid response times. Scalability is a key consideration, as these environments need to easily accommodate increasing data loads without performance decline. Equally important is fault tolerance, which guarantees reliable and resilient data streams. This is crucial for maintaining uninterrupted operations, even in the face of hardware or software issues. Data integration for application modernization focuses on leveraging real-time replication and synchronization to seamlessly stream mainframe data into a unified data flow.

### Unlock the full potential of your mainframe data

Mainframes are a veritable treasure trove of valuable data that can spark major advances in analytics, AI initiatives, and application modernization. However, accessing that data is not without obstacles. Technical debt, complex data formats, and geographical discrepancies can be tough to navigate. With the right integration strategy that covers coexistence, analytics, BI, migration, and application modernization, you can tackle these challenges head-on and make the most of your mainframe data.

Discover how Rocket Software <u>bridges the</u> <u>gap between mainframe</u> <u>and the cloud</u>.

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