



# How to Modernize the Mainframe without Disruption

An Intellyx White Paper for Rocket Software by Jason Bloomberg, Managing Director October 2024



Despite the mainframe's six decades of history, the platform remains a powerful and mission-critical component of many enterprise IT strategies.

Modernizing the applications and data on the mainframe has become a top CIO priority – but they must accomplish such modernization without disrupting the business.

Earlier mainframe modernization approaches were limited to a disruptive 'leave and layer' vs 'rip and replace' dichotomy.

In contrast, today's mainframe modernization initiatives leverage a variety of options that can meet modern enterprise requirements as diverse as cloud native computing and AI, while minimizing disruption to the business.



#### **Dispelling the Myths of Mainframe Modernization**

In 1991, newspaper columnist Stewart Aslop famously predicted that the last mainframe would be unplugged on March 15<sup>th</sup>, 1996.

How wrong he was.

Today the mainframe remains the workhorse of modern enterprise computing. For the banks, insurance companies, airlines, and numerous other companies that depend upon Big Iron, the venerable platform is as modern and relevant as ever.

Even the moves to the cloud and more recently, to cloud native computing haven't diminished the relevance of the mainframe. Instead, the mainframe has become an important component of many of these enterprises' hybrid IT strategies.



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Instead, modernization without disruption is the name of the game. Organizations realize that they must update whatever legacy remains on the platform to meet the modern needs of the business while extending the useful lifetime of the mainframe.

Sometimes, mainframe modernization initiatives involve updating or replacing older applications on the mainframe with new or reworked mainframe applications.

More likely than not, however, mainframe modernization requires some combination of mainframe and cloud-based capabilities working together.



Given the prevalence of legacy technologies in today's enterprises combined with the incessant pressure to innovate, CIOs are now struggling more than ever to implement cost-effective modernization strategies with a minimum of disruption.

#### **The Diversity of Modernization Options**

Over the last several decades, CIOs have struggled with efforts to decommission their mainframes. Many organizations have spent hundreds of millions of dollars to migrate off their mainframes, with little to show for their efforts.

Such migrations are expensive, take years to complete, and often fail to enable the decommissioning of the mainframe in the end.

Rewriting mainframe-based applications that may have been running for decades is also fraught with challenges. The original developers are no longer around, and asking the next generation of mainframe programmers to rewrite millions of lines of mission-critical code is typically a non-starter.



New technologies and modernization approaches have reduced the risks inherent in mainframe migration by empowering mainframe-based organizations to leverage the power of the platform within the context of modern, hybrid architectures.

Avoiding such risks has generally led to the increasing preponderance of older, legacy technology in today's enterprises.

Today, however, new technologies and modernization approaches have reduced the risks inherent in mainframe migration by empowering mainframe-based organizations to leverage the power of the platform within the context of modern, hybrid architectures.



This modern architectural context shifts the organization's modernization priorities. Instead of outdated mainframe migration and decommissioning strategies, today's mainframe modernization approaches should focus on delivering three core advantages:

- *Adaptability* Enterprises must be able to update their mainframe-based applications as necessary to meet changing market needs and customer priorities, requiring modern tools and the people to use them.
- *Velocity* Organizations should be able to leverage modern development processes and practices like DevOps to make changes on the mainframe more quickly than had been possible previously.
- *Portability* Mainframe applications should no longer be locked up inside the mainframe. Organizations should use virtualization and other modern software infrastructure to move applications between the mainframe and the cloud as necessary.

Making adaptability, velocity, and portability central to an enterprise's mainframe modernization strategy shifts the discussion away from retiring the mainframe to leveraging it as a modern platform for today's computing needs.

### Implementing Today's Mainframe Modernization Strategy

To achieve these goals, organizations should implement a mainframe modernization strategy that combines three main options for modernization of their mainframe applications:

- *Leave and layer* Leave existing application in place but access it via a new API layer and modern integration technology. It is essential to identify those applications (or parts of applications) that meet the current business need. This option is typically the least expensive but also the least flexible.
- Modernize in place When existing applications mostly meet new requirements but require updates or bug fixes. Organizations either update existing applications directly on the mainframe or write new mainframe-based applications that meet evolving requirements.



- *Replatform* Instead of risky 'rip and replace' mainframe migration and decommissioning strategies, organizations should relocate specific application functionality and business logic to the cloud to reduce costs, risk, and time compared to a rewrite. In some cases, replatforming moves an entire application or set of applications off the mainframe, but more generally, replatforming targets only those applications that would better meet business needs in the cloud.
- *Hybrid* Combining mainframe-based applications and data with cloud-based assets in an intentional hybrid architecture. Such hybrid deployments often include replatformed assets. In other situations, hybrid strategies extend existing mainframe capabilities.

To make the right decision about which modernization approach is right for a particular situation, it's important to balance the business value of the effort with the cost and complexity of completing it.

For example, when mainframe applications are well-defined and modular, then replatforming is far more straightforward than complex 'spaghetti code' applications that have numerous dependencies within the code.



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Converting legacy to modern code using automated code conversion tools is also an option, but such conversion is typically a recipe for failure – and even so, code conversion is only a small part of the replatforming process.

Replatforming off the mainframe also requires the conversion of data, the establishment of new processes and procedures, and the training necessary to support the replatformed applications.

Even if the resulting translated code meets current needs, most organizations find that the modernization process requires updating capabilities as well, beyond the capabilities of code translation tools.

#### **Separating Data and Application Concerns**

Enterprises use mainframes both to run applications as well as to store and process data. The modernization considerations for each task are often different.

Leaving core transaction processing on the mainframe is a straightforward, low-risk decision, while running workloads like analytics and customer experience apps on the cloud will typically reduce costs and deliver the full power of cloud-based services.



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In many situations, the question is less about where applications are running and more about the data themselves. Supporting mobile apps with mainframe data, for



8

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example, can be both expensive and slow, due to mainframe processing costs, data transport costs, and network latency issues.

Data gravity – the difficulty and cost of moving large quantities of data – can also become a significant challenge with larger data sets, be they on the mainframe or in the cloud. Data gravity becomes a particular challenge when organizations use data sets to train their AI models – especially the large language models behind generative AI.

Even once the models are in production, when the focus shifts from training to inferencing, inferencing in real time closest to where the data reside is a competitive advantage the modern mainframe can provide. Real-time fraud detection is a prime example.

In other situations, the goal is to expand access to mainframe data to cloud-based applications and services. Organizations are thus able to leverage the value of data on the mainframe across their IT landscape.

#### The Intellyx Take

Modern enterprises now have the means to modernize legacy applications within a new context that recognizes that there is far more going on with today's modernization than in the old mainframe decommissioning initiatives.

True, in some cases the business requires entirely new applications, but it may just as likely need to update existing applications, connect new, modular capabilities to older apps, or pull together cloud-based and mainframe assets in various ways to meet changing customer needs.

The modernization challenge thus depends upon leveraging the right tools, processes, and skills to achieve the adaptability, velocity, and portability benefits that reduce disruption to the business while delivering continuing business value.

Regardless of which modernization strategy meets the business need, it's clear that the mainframe is here to stay – and furthermore, has become an important part of modern hybrid IT strategies.



9

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## **About the Author**



Jason Bloomberg is the founder and managing director of enterprise IT industry analysis firm Intellyx. He is a leading IT industry analyst, author, keynote speaker, and globally recognized expert on multiple disruptive trends in enterprise technology and digital transformation.

He is #14 on the <u>Top 50 Global Thought Leaders on Cloud</u> <u>Computing 2024</u> and #10 on the <u>Top 50 Global Thought Leaders</u> <u>on Mobility 2024</u>, both by Thinkers 360. He is a leading social amplifier in Onalytica's <u>Who's Who in Cloud?</u> for 2022 and a <u>Top</u> <u>50 Agile Leaders of 2022</u> by Team leadersHum.

Mr. Bloomberg is the author or coauthor of five books, including *Low-Code for Dummies*, published in October 2019.

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