



2022 Survey Report:

The State of the Mainframe



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The mainframe remains critical to business operations. How are IT leaders modernizing it for improved performance?

The mainframe industry is at a critical point in its history—the necessity of digital transformation, increasing compliance requirements, desire to connect more closely with customers, expanding cloud environments, cost pressures, demand for modern user experiences and more are all contributing to the evolution of this foundational technology. While proponents of distributed, cloud and hybrid-cloud may say that is the only way forward, the reality is that mainframes continue to be an important part of IT infrastructure, with 67% of Fortune 100 companies relying on them. Simply going about their everyday lives, consumers are constantly interacting with mainframes whether they are shopping online or going to the doctor—and they don't even know it.

With this predominance in mind, Rocket Software set out to discover the current state of the mainframe industry from the experts driving IT decision-making and operations in their enterprises. In December 2021 and January 2022, Rocket surveyed over 500 U.S. IT professionals in firms using mainframes to understand their priorities, challenges and plans for leveraging their mainframes going forward.



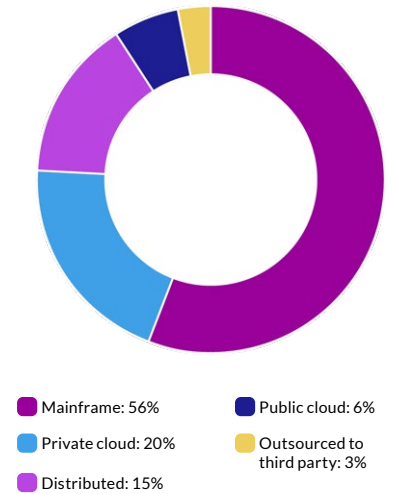
Today's mainframe continues to power critical business

Which makes up most of your IT infrastructure?

Despite the allure of new technologies that promise to deliver on digital transformation, more than half (56%) of respondents say the mainframe still makes up the most of their IT infrastructure, followed by private cloud (20%) and distributed (15%). This continued dominance illustrates the effectiveness and reliability of the mainframe and its ongoing role as a key player in IT environments.

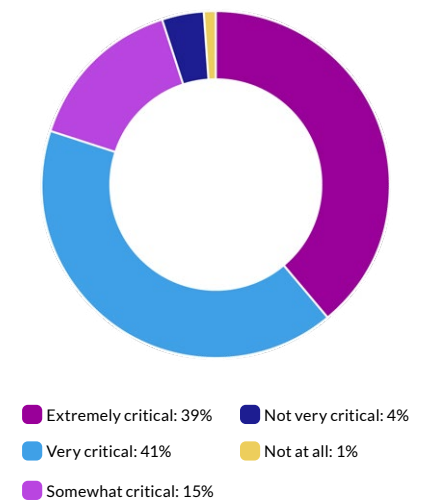
Who took this survey?

- IT directors
- Administrators
- Mainframe professionals
- Application managers
- Database administrators
- Systems administrators



How critical is the mainframe to your organization's business operations?

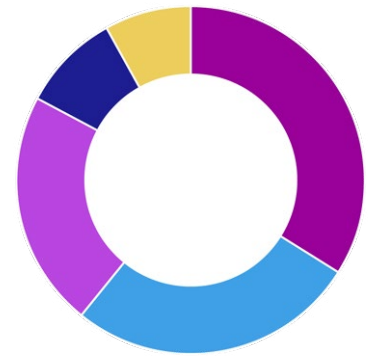
It makes sense then that 80% of respondents say the mainframe is extremely (39%) or very (41%) critical to their organization's business operations. Where mainframes are being used, they are the foundation of the digital business. Layers of technology within enterprises rely on mainframe data stores and processing power.



What most contributes to your organization's use of the mainframe?

There is no denying the importance of mainframes within the enterprises that use them – they are still unsurpassed in their powerful capacity and security. These features are necessary for efficiently and safely delivering data for business processes across disparate IT environments. Respondents say the top three qualities that contribute to their organization's reliance on the mainframe are reliability (34%), security (27%) and efficiency (22%).

Reliability and security speak to organizations' need for business continuity. Over the past two years, the world has seen increasing frequency of disruptive events from a broad scale, such as the COVID-19 pandemic, to more industry-specific issues, such as cybersecurity breaches and increasing regulation. Stakeholders have higher standards for how products and services are delivered and how data is managed. Efficiency is key to agility and responsiveness, and security is the foundation of building customer trust. All of these are delivered with mainframe technology, but organizations are looking for ways to continually pursue their digital transformation goals without compromising on these capabilities.



- Reliability: 34%
- Security: 27%
- Efficiency: 22%
- Investment made: 9%
- Flexibility: 8%

Modernizing, not re-platforming, drives investment

As with any part of IT infrastructure, there must be a roadmap to continue to transform the mainframe and expand its capabilities. Most respondents' organizations are choosing to modernize in place. Respondents described their organizations' current mainframe application and operations IT strategy as "modernizing in place" (56%), "operating as is" (27%) and "re-platforming" (17%).

Modernizing in place is the widely preferred method of bringing the mainframe up to date with end-user expectations and customer demands. **Why modernize in place?**

Respondents say their strategic imperative for doing so is:

39% Modernizing core infrastructure

26% Modernizing user experiences and interfaces

24% Automating for efficiency

These motivations illustrate the central drivers for upgrading system performance and streamlining workflows by moving some applications into the cloud and keeping others on the mainframe. With solutions that improve mainframe performance and user experiences, productivity and satisfaction among users also increases. Strategically modernizing in place delivers these benefits without the costs and disruption associated with re-platforming.

Modernize in place

Optimizing mainframe applications and infrastructure by enhancing applications, adding capabilities, modernizing user interfaces, etc.

Operating as is

Maintaining, patching and upgrading existing applications and infrastructure.

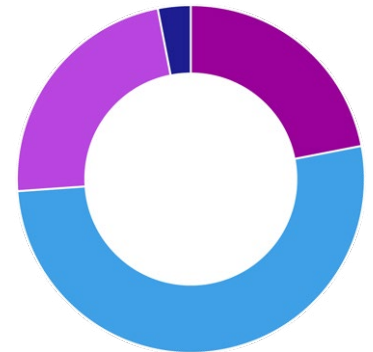
Re-platform

Removing and replacing mainframe infrastructure, moving entirely away from existing applications and infrastructure to distributed, cloud or hybrid-cloud models.

Data governance and analytics extends to mainframe

How integrated is your mainframe data with data governance, insights and analytics initiatives?

Respondents report their mainframe data is fairly integrated with their data governance, insights and analytics initiatives: 22% said they are extremely integrated while most (52%) said very integrated. Furthering these integrations is one component of a modernization strategy that unifies and simplifies IT environments.



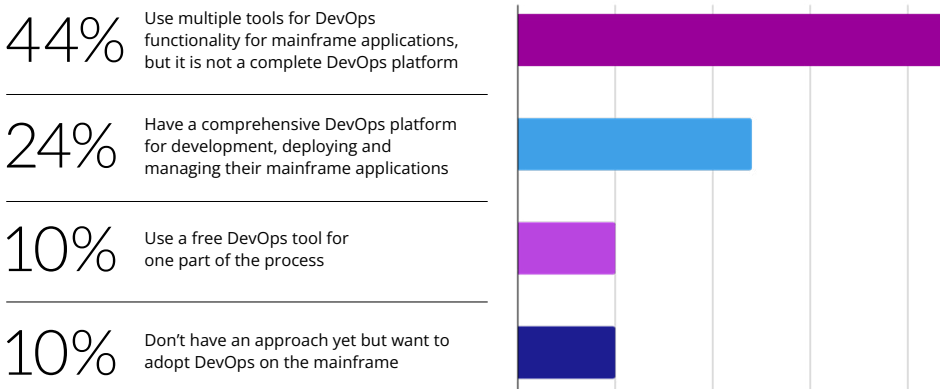
Extremely integrated: 22%
Very integrated: 52%
Somewhat integrated: 23%
Not very integrated: 3%

Mainframe no longer a DevOps afterthought

Implementing DevOps functionalities for mainframe applications is also an opportunity to modernize the mainframe's capabilities and performance. With CI/CD (continuous integration and continuous delivery), IT professionals can accelerate the code release process and help with deployment of new applications to improve value delivery for customers.

When it comes to scaling DevOps efforts to their mainframe infrastructure, 44% of respondents say their organization uses multiple tools for DevOps functionality on mainframe applications, but it is not a complete DevOps platform while 24% have a comprehensive platform for mainframe DevOps.

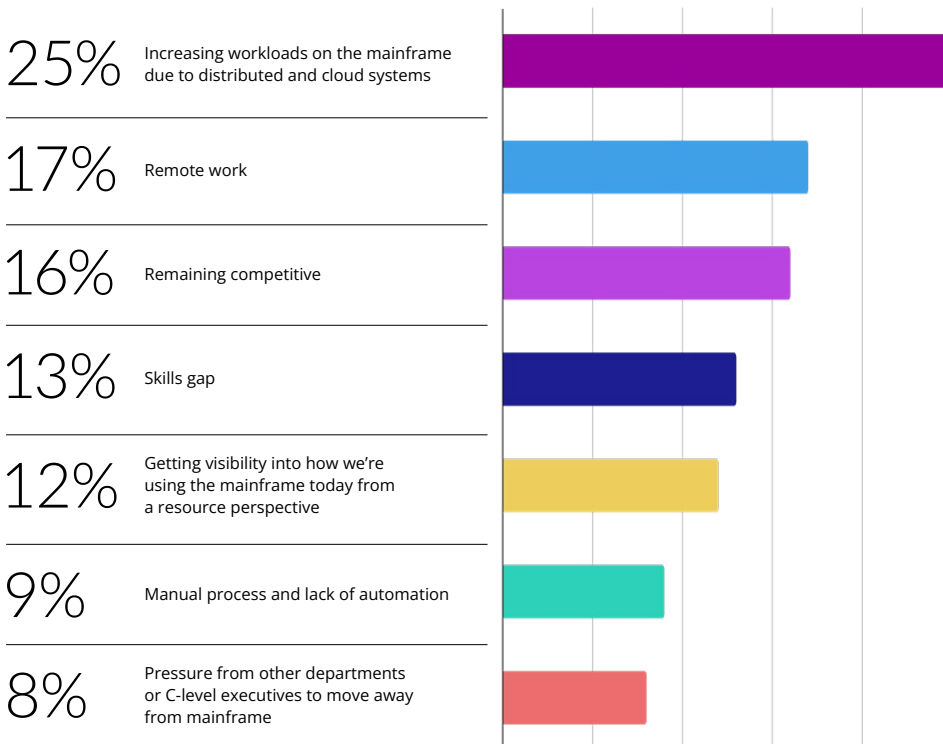
What is your approach, if any, to scaling your DevOps efforts to your mainframe infrastructure?



Overcome mainframe challenges to embrace hybrid

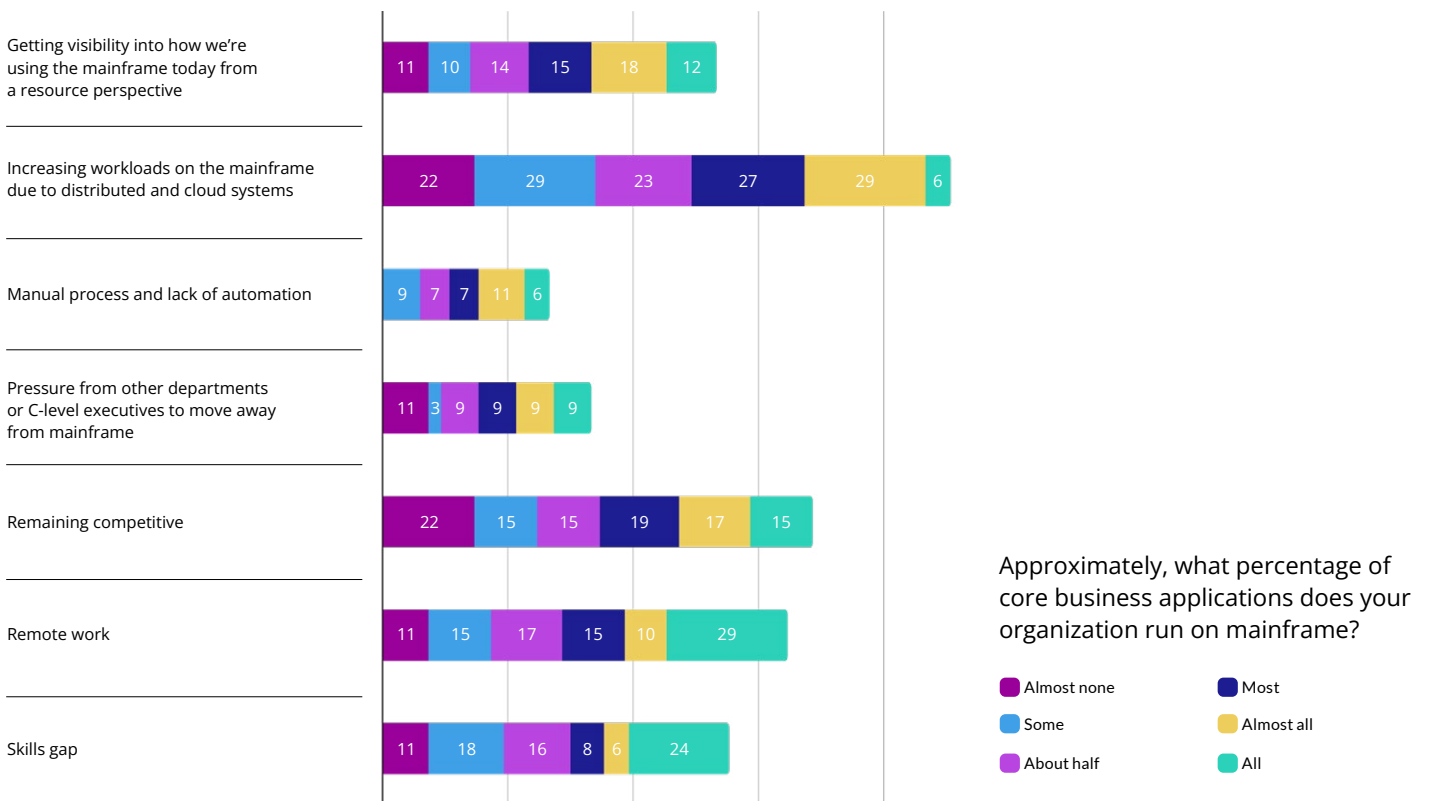
Managing changes to IT environments inevitably comes with some challenges as teams work to restructure processes and adopt new best practices. Rocket's survey findings identified the obstacles that are top of mind for mainframe professionals; among them are increasing workloads on the mainframe due to distributed and cloud systems (25%), remote work (17%) and remaining competitive (16%).

What is your greatest challenge with ongoing mainframe performance management:



What is your greatest challenge with ongoing mainframe performance management?

Respondents whose organizations are running all their core business applications on the mainframe are more likely (29%) to say remote work is their greatest challenge to mainframe performance management as compared to respondents who use the mainframe for almost all (10%), most (15%), about half (17%), some (15%), or almost none (11%) of their core business applications.

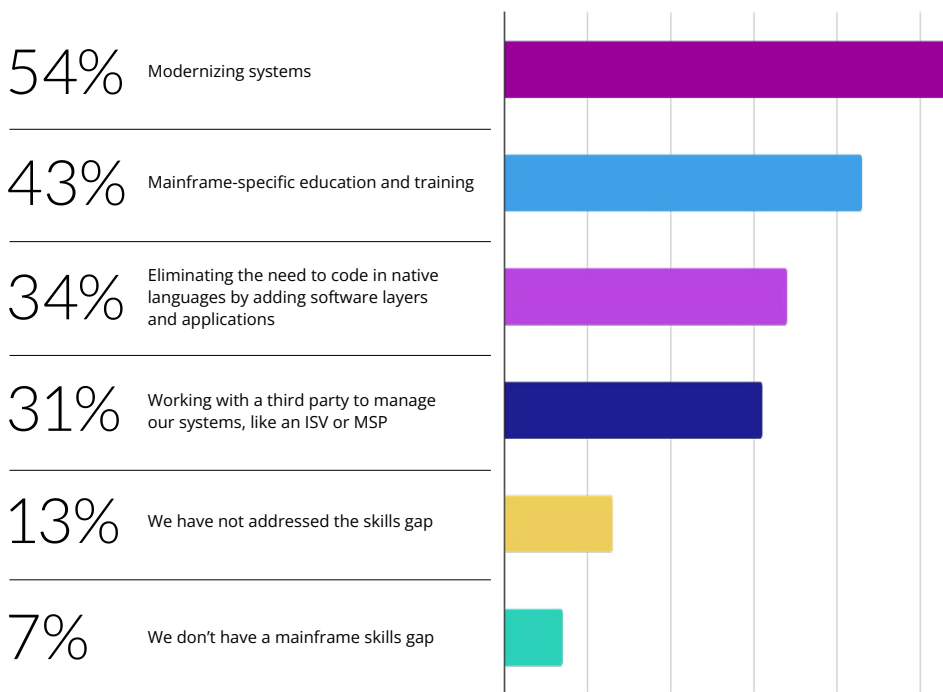


As mainframes continue to take on increasing workloads and work structures shift increasingly remote, IT professionals will need to find new solutions to these challenges. Modernizing the mainframe plays a role in addressing these, as improved software, interfaces and analytics help to manage performance.

The search for mainframe talent

How are you addressing the mainframe skills gap?

Addressing the mainframe skills gap is made easier through modernization as well; modernizing systems is the most popular way respondents are working to maintain talent pipelines.



13% of respondents are not working to address the skills gap they're experiencing. When employees reach retirement age, these organizations may have difficulty training new hires if they don't maintain a pipeline of new talent.

The need for talent is pervasive in the mainframe space – 93% of respondents say they are experiencing a skills gap.



Businesses that use mainframe technology are experiencing a generational gap as new talent is increasingly difficult to find. At the same time, as many seasoned employees retire, they take their expertise with them, bringing new challenges to onboarding and training. This is coupled with the misguided perception that mainframe technology is outdated, which deters many new hires."

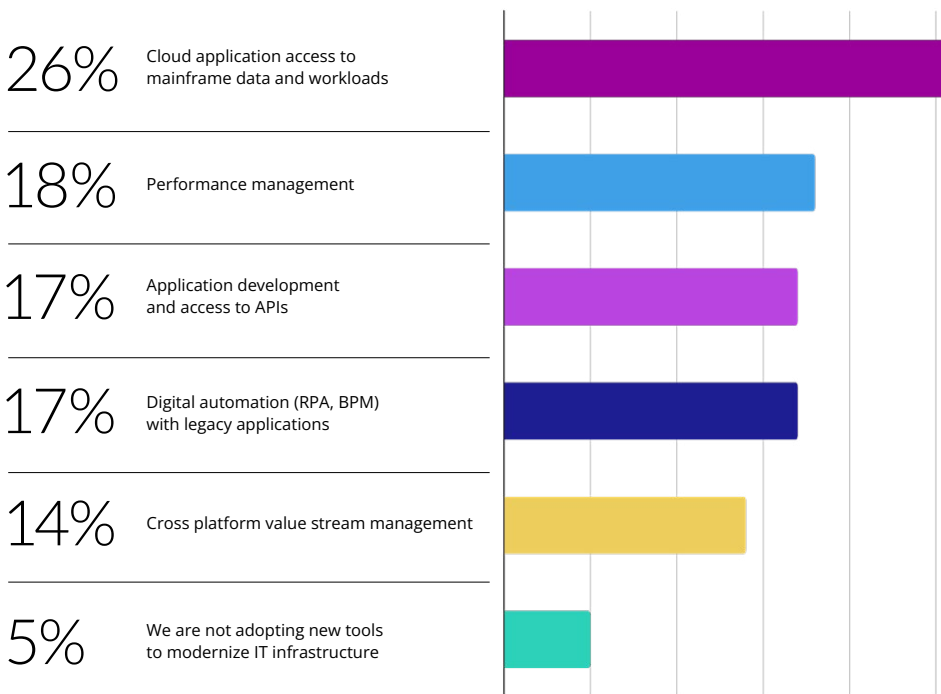
JEFF CHERRINGTON

Vice President,
Product Management,
Infrastructure Modernization,
Rocket Software

Rethinking workloads from mainframe to cloud

What is your greatest need for tools to help modernize your mainframe IT infrastructure?

Cloud application access to mainframe data and workloads (26%) is the greatest need when it comes to tools to help modernize respondents' mainframe IT infrastructure. Respondents also cite performance management (18%), application development and access to APIs (17%), and digital automation (RPA, BPM) with legacy applications (17%).



Leveraging the right tools to integrate modern solutions (such as cloud computing, APIs and automation) with the mainframe is essential to maximizing organization's investments in their critical IT infrastructure.

The cloud and mainframe

While ripping and replacing mainframe infrastructure is not a pragmatic approach for most enterprises, they still need to find ways to integrate each layer of their tech stacks to optimize performance. Leveraging the diversity of solutions available from cloud to mainframe and optimizing each layer to operate together will create the most effective, unified environment.

Integration with the cloud is top of mind for mainframe professionals. Eighty-two percent of respondents are migrating at least some of their workloads and operations from mainframe to cloud, however only 4% are going completely cloud native. This trend towards hybrid environments emphasizes the need for integration and optimization.

What percentage of your workloads and applications do you plan to migrate from your mainframe to cloud?

Respondents who characterize their IT infrastructure as “almost all or all on premise” are less likely to be migrating workloads and applications to the cloud. Sixty-eight percent of respondents in that category said they are not moving workloads and applications to the cloud, compared to 13% and 19% of respondents who characterize their IT infrastructure as “half in cloud, half on premise” and “mainly in cloud” respectively.

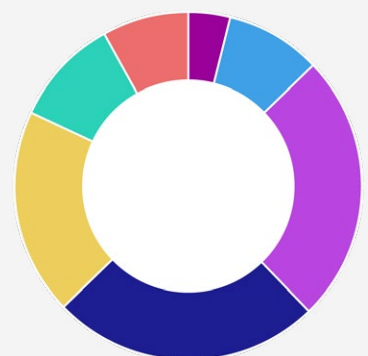
How would you describe the migration of your workloads/applications?

Most respondents (61%) are migrating to mainframes in the cloud, while 37% are migrating to distributed systems. Mainframes are an efficient way for enterprises to run a private cloud environment, as they provide the memory, storage and ability to handle large workloads.



Hybrid cloud infrastructure will continue to be the path forward for enterprises in 2022, as monolithic tech stacks are no longer practical. Enterprises need to leverage their years of technology investments and the latest tools available to create the most effective environment for their business."

MILAN SHETTI
CEO,
Rocket Software



- All: 4%
- Almost all: 9%
- Most: 25%
- About half: 25%
- Some: 19%
- Few: 10%
- None: 8%

Overcoming legacy perceptions remains a challenge

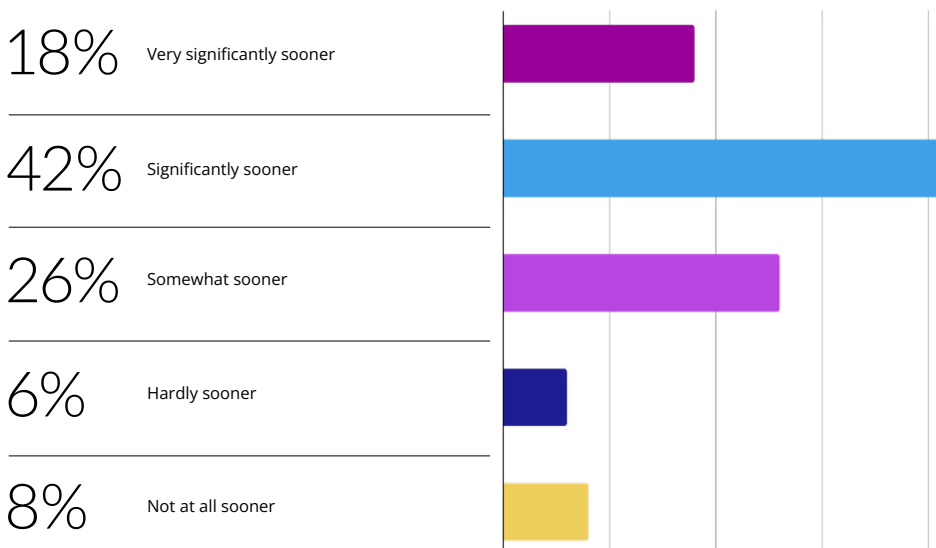
Why do you plan to migrate from your mainframe to the cloud? (Respondents chose all that applied)



The cloud offers many benefits to organizations when integrated successfully with mainframe data stores. Respondents point to cloud offering more flexible capacity (54%), better access with remote work (45%) and better performance (42%). These benefits align with the challenges mainframe professionals are facing, such as the shift to hybrid work and increasing mainframe workloads.

While mainframes are seeing increasing workloads and still make up the foundation of most Fortune 100 companies' IT infrastructure, there is still a perception that they are outdated.

How much, if at all, has the ongoing COVID-19 pandemic accelerated your move to the cloud?



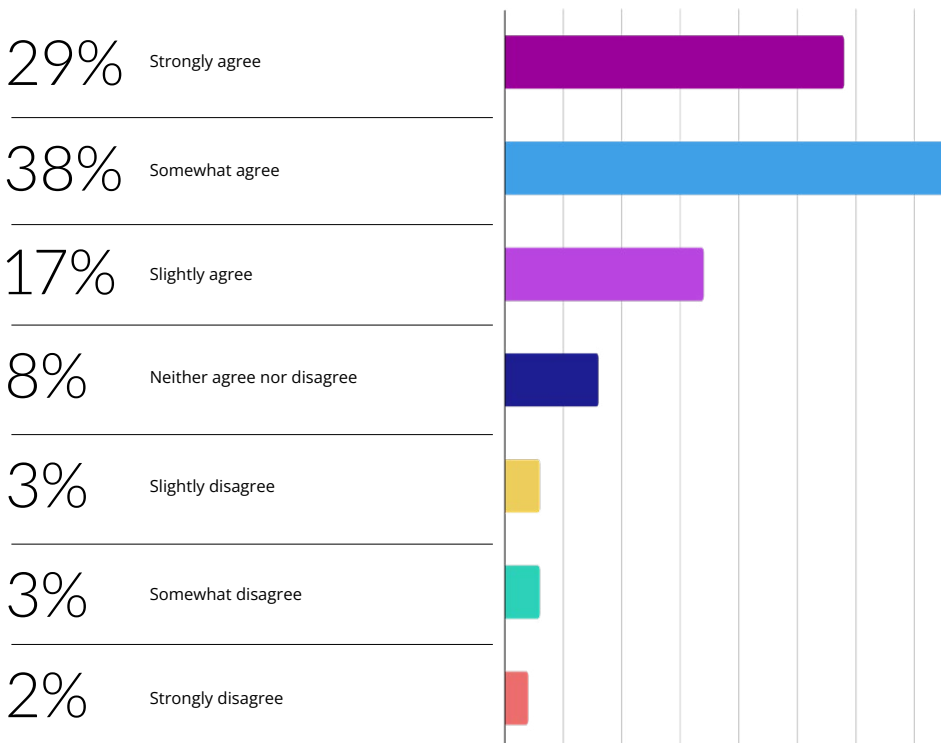
The COVID-19 pandemic had a major impact on moving to the cloud – 60% of respondents say it accelerated their move to the cloud very significantly or significantly sooner. Since enabling remote work remains a priority for mainframe professionals, it follows that COVID-19 was a primary motivator for the shift to cloud. Dispersed workforces need access to critical mainframe data to do their jobs wherever they are, and cloud environments can provide that.

No longer an either/or, tech leaders see hybrid infrastructures as their future

IT leaders are accustomed to balancing the needs and priorities of executives, end-users across the organization and their own teams. This survey aimed to discover the dynamics between mainframe professionals and enterprise leaders to gain insight into how mainframe professionals operate within their organizations.

When it comes to leadership’s desire to move toward hybrid infrastructure models, 84% of respondents agree that their CIO believes hybrid is the path forward. Meanwhile, only 8% of respondents disagreed, illustrating a general consensus that the move towards hybrid cloud will continue.

To what extent do you agree with the sentence, “Our CIO or leadership team believes we need to embrace a hybrid infrastructure model that spans from mainframe to cloud.”

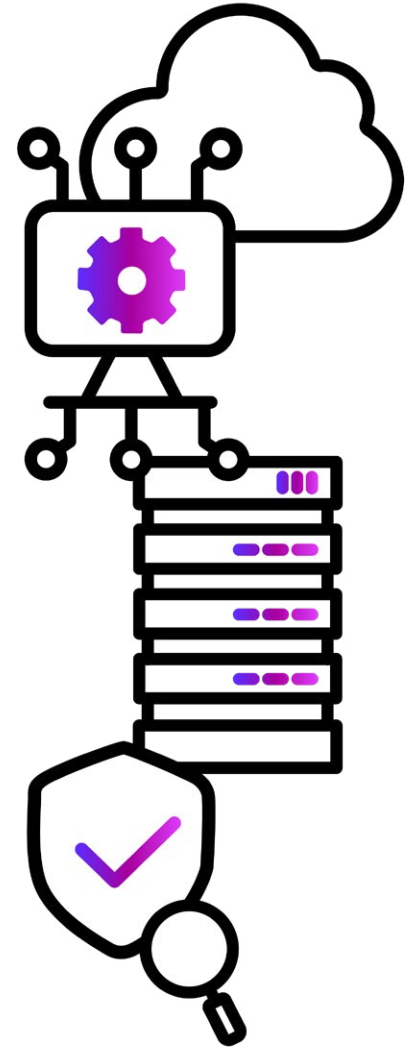


Modernize for a hybrid future

While full cloud migration has a lot of buzz, where mainframes are being used, they are the foundation of IT infrastructure thanks to their reliability, security and efficiency—and that doesn't appear to be changing any time soon. As continued digital transformation remains a priority for enterprises to gain competitive advantage, those that rely on mainframes will need a roadmap to bring this critical IT infrastructure into the future.

Pressure to meet regulatory compliance, changing customer needs, competition for IT talent, end-user expectations and more will drive modernization efforts. Modernizing in place, rather than re-platforming, is the preferred method to bringing the latest capabilities to the mainframe. With this strategy, enterprises can upgrade system performance, deliver improved user experiences and integrate each layer of their tech stack without disruptive rip and replace initiatives.

To overcome challenges to mainframe performance such as increasing workloads and the shift to remote work, cloud migration will be a key element of mainframe modernization strategy. Businesses need to leverage their years of technology investments and the latest tools available to deliver modern user experiences and improved performance with a unified IT environment. Modernizing in place with a hybrid cloud strategy will be the path for enterprises to achieve the best business outcomes into the future.



About Rocket Software

Rocket Software partners with the largest Fortune 1000 organizations to solve their most complex IT challenges across Applications, Data and Infrastructure. Rocket Software brings customers from where they are in their modernization journey to where they want to be by architecting innovative solutions that deliver next-generation experiences. Over 10 million global IT and business professionals trust Rocket Software to deliver solutions that improve responsiveness to change and optimize workloads. Rocket Software enables organizations to modernize in place with a hybrid cloud strategy to protect investment, decrease risk and reduce time to value. Rocket Software is a privately held U.S. corporation headquartered in the Boston area with centers of excellence strategically located throughout North America, Europe, Asia and Australia. Rocket Software is a portfolio company of Bain Capital Private Equity. Follow Rocket Software on [LinkedIn](#) and [Twitter](#).

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