MAINFRAME MODERNIZATION PLAYBOOK

ON-THE-GROUND INSIGHTS FROM IN-THE-FIELD EXPERTS

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JANUARY 2024

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Introduction

The journey toward mainframe modernization is both a challenge and an opportunity. It can reveal untapped savings, unseen efficiencies, and hidden talent, but it can also be difficult to navigate without experience and expertise.

As mainframe experts for over 30 years, CPT Global offers a unique perspective to companies looking to modernize their mainframe systems. Our team has successfully guided numerous large organizations through the process, from developing strategies and managing vendors to cutting costs and creating a solid business case for change or improvement.

Our clients have seen significant returns on their investments, savings millions of dollars by making the mainframe a more critical business asset and by leveraging best practices in new technologies.

If your organization is on its own mainframe modernization journey, this eBook can help you understand what to expect and how to achieve success.

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01

Looking at Client Trends

Modernization Trends: To Cloud or Not to Cloud?

Mainframe modernization is on the rise, but it's not always happening on the cloud. While some businesses are taking a "big bang" approach to transformation, most companies and clients are choosing to Modernize In Place instead.

What is Modernizing in Place?

Modernizing in place is the process of upgrading and improving your existing system or infrastructure without replacing it. This approach is often used to connect legacy systems with newer technologies.

The goal is to extend the life of the system, improve its performance, and make it more compatible with modern needs and standards, all while avoiding the high costs and potential risks associated with a complete system overhaul.

With budgets tightening and companies becoming more risk-averse, modernization strategies that deliver high-impact, low-cost solutions without disrupting the business are needed – and hybrid systems are doing that.

Here's how the IT teams we work with are striking the balance between performance and pricing.

More on Hybrid Systems

When adopting a hybrid approach, many businesses leverage both z/OS and non-z/OS technologies in a single system, enabling them to connect cloud or new technologies with their mainframes, enhancing interaction with other platforms.

Key technologies clients are using include:

- **z/OS Connect EE**
- **IBM MQ**
- **Zowe**
- **Db2 DDF**
- **IMS Connect**
- **CICS Web Services**
- **COBOL**

In our 30+ years of experience, around 50% of organizations also replicate mainframe-resident data to cloud-based platforms and big data environments for easier processing and user access. IT teams are also exploring source code management options like Git for better code control, protection, and management.

Looking at Tool and Language Trends

Architectures are changing, and with them are development tools and languages.

Zowe is a noteworthy tool used by clients, providing more control over the development process.

Java is still the language of choice with teams reevaluating **COBOL** code, especially for those seeking compatibility and a considerable pool of developers.

Python and **Node.js** are also adding flexibility to the modernization toolbox, offering a more user-friendly approach for developers.

Mainframes are being integrated with cloud-native technologies like **Kubernetes** and **Docker**, enabling teams to leverage cloud scalability and flexibility across their mainframe infrastructure.

The Latest on Workload Lift and Shift

When moving workloads off the mainframe, our clients consider various solutions:

- Using off-the-shelf SaaS platforms like **Guidewire**
- Rehosting with **MicroFocus** or **LzLabs**
- Migrating projects with **Amazon Web Services (AWS)**, **Microsoft Azure**, **Google Cloud**, or another cloud provider

Although none of our current clients have successfully retired their entire mainframe, some have started moving workloads off the platform, and we've seen success in smaller systems. So, while retirement may not happen tomorrow, plans are underway.

Next Up: Risk-Proofing Your Strategy

02

Risk-Proofing Your Strategy

Risk-Proofing Your Modernization Strategy

Modernization and transformation programs are complex, so unsatisfactory outcomes are common. Data by the Standish Group supports this.

According to their *2020 CHAOS Report*, only 23% of IT projects led by highly skilled project managers succeed and 19% are total failures. The remaining 58% are considered challenged, indicating the project:

- exceeded budget
- overran schedule
- didn't meet specifications

23%

of IT projects are successful

58%

of IT projects are challenged

19%

of IT projects are total failures

Assessing Impact with Solution Testing

Solution testing is a full-stack approach to identifying and resolving potential issues before a product launches to ensure seamless integration with other enterprise solutions. It validates a proposed architecture, optimizing system design and functional requirements, in addition to a range of other benefits:

- **Improved Quality:** Solution testing helps identify and resolve problems before an architecture is implemented, improving overall system quality.
- **Reduced Risks:** By identifying potential risks early in a project, your teams can mitigate or avoid them altogether.
- **Cost Savings:** Mistakes cost money. Solution testing helps you avoid surprises resulting from unseen system conflicts.
- **Better Efficiency:** This approach helps ensure the solution meets its purpose and launches at maximum efficiency.

An Inside Look at Our Solution Testing Strategy

Ensuring operational efficiency from the mainframe to the cloud is essential for modernization success – and the earlier it happens in the process, the better the business outcome. By implementing the right testing and assurance model from the beginning, your business prevents broken processes and potential risks.

CPT Global's end-to-end approach to solution testing includes:

- **System Model Tests:** Identifying potential points of failure in the architecture by understanding data flow.
- **Functional Tests:** Measuring component functionality and behavior.
- **Integration Tests:** Evaluating how components interact to identify conflicts.
- **Performance Tests:** Assessing system responsiveness, scalability, and reliability under different conditions.
- **Security Tests:** Simulating attacks to identify system flaws.

As the saying goes, starting a new project is like jumping off a cliff and building an airplane on the way down. Solution testing helps ensure all the pieces are in place for a safe and successful landing.

Next Up: Creating a Competent Team

03

Creating a Competent Team
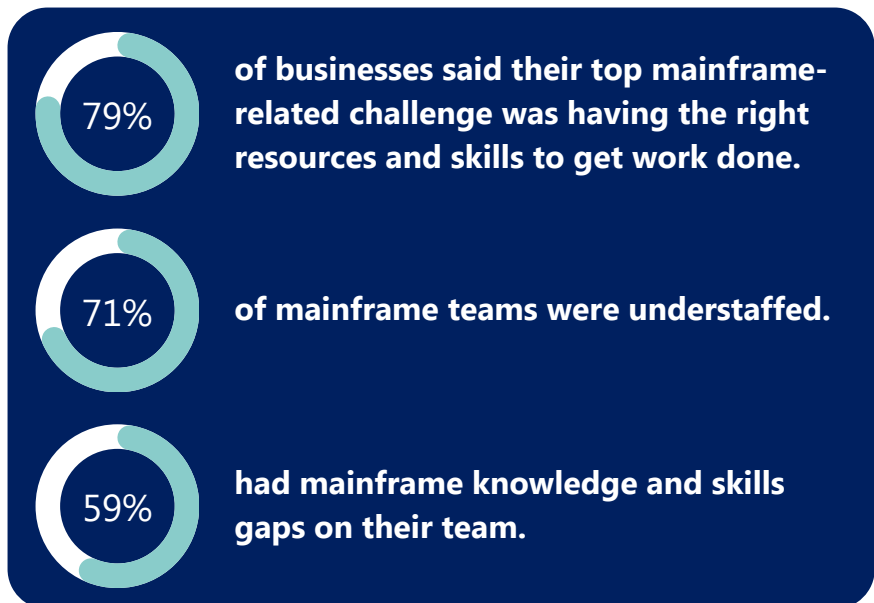
Attracting Next-Gen Mainframe Experts

Many of our clients are simply "keeping the lights on" with their mainframes, working to maintain independent control and oversight. But there's also been an awakening to the hard reality of moving away from the mainframe.

While an eventual shift to the cloud is considered essential, it's not as simple, fast, or cost-effective as many organizations would like it to be. Consequently, attracting mainframe experts has become crucial.

Ensuring Legacies Aren't Left Behind

A lack of mainframe skills and an aging mainframe workforce are growing concerns for businesses.

A 2021 collaborative study between Deloitte and IBM found:

79% of businesses said their top mainframe-related challenge was having the right resources and skills to get work done.

71% of mainframe teams were understaffed.

59% had mainframe knowledge and skills gaps on their team.

Here's how companies are effectively addressing these challenges.

The Power of Mentorship Programs

Mentorship programs are an effective way to bridge the gap between experienced technicians and new recruits.

Successful mainframe mentorship programs tend to include:

- **Knowledge Transfer:** Structured workshops, side-by-side collaborations, and group activities that allow experienced staff to transfer knowledge and skills to newer employees.
- **Reverse Mentoring:** Pairing younger, tech-savvy employees with older workers for cross-generational collaboration.
- **Internships & Apprenticeships:** Providing potential recruits with hands-on experience while companies evaluate their skills before offering permanent roles.
- **Part-Time Retention:** Encouraging experienced professionals to consider part-time or consulting roles post-retirement, preserving access to extensive site knowledge.
- **Cross-Training:** Promoting cross-training among existing IT staff to ensure a broader skill set that includes mainframe expertise.

Infusing Purpose Into Your Program

The mainframe environment, often overshadowed by newer technologies, requires attracting young talent for system

continuity. Defined career paths are necessary for addressing this challenge.

To attract new talent, your business must:

- **Emphasize the role of mainframe systems** in modern business operations, particularly in finance and healthcare.
- **Highlight mainframe modernization efforts**, including DevOps, microservices, and cloud technologies.
- **Assist new talent in establishing a career path** set up for long-term opportunities and growth.
- **Offer competitive compensation and benefits** to attract younger professionals.
- **Partner with educational institutions** to promote mainframe-related coursework and internships.

Giving Your Strategy Structure

Institutional knowledge is invaluable but passing it on without a structured training program is challenging. To develop structured training programs:

Define essential skills and knowledge areas for mainframe support roles to align training programs with requirements.
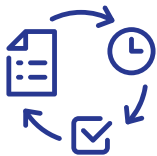
Offer training through simulations, labs, and real-world projects. A documented process only goes so far, so understanding the "why" is crucial for young professionals.

Foster ongoing skill development through certifications, workshops, and online courses.

Match junior staff with experienced mentors to facilitate knowledge transfer and skill development, but with the understanding that not all senior staff will excel at teaching.

Finding the "Right Stuff"

Mainframe support isn't for everyone. It requires attention to detail, problem-solving abilities, and a passion for mainframe systems. Here's how we've been supporting our own Mainframe Mentoring Program:

- **Targeted Recruitment:** Focus on seeking out individuals who show a genuine interest in mainframe technology and its challenges.
- **Behavioral Interviews:** Assess candidates' problem-solving skills, attention to detail, and long-term career commitment in mainframe support through behavioral interviews.
- **Technical Assessments:** Evaluate candidates' skill level using a tailored learning approach to determine the necessary investment in time and resources.
- **Career Development Plans:** Develop personalized career plans for promising hires, focusing on long-term growth and advancement within the organization.

Staffing a mainframe support team can be challenging, yet with careful planning and investment in skills development, your organization can bridge the generational gap and ensure business continuity.

**Next Up: Modernizing Cost-Effectively**

04

Modernizing Cost-Effectively

Modernizing Cost-Effectively: CPT Success Stories

The mainframe is often seen as a cost center, with organizations spending vast amounts of money on hardware, software, and labor to maintain these systems. Modernization can drive down these costs and provide a competitive advantage.

In the following success stories, we look at two ways companies are working toward modernization while making the mainframe a more cost-efficient asset.

According to BMC, 49% of businesses are prioritizing mainframe cost optimization, second only to security.
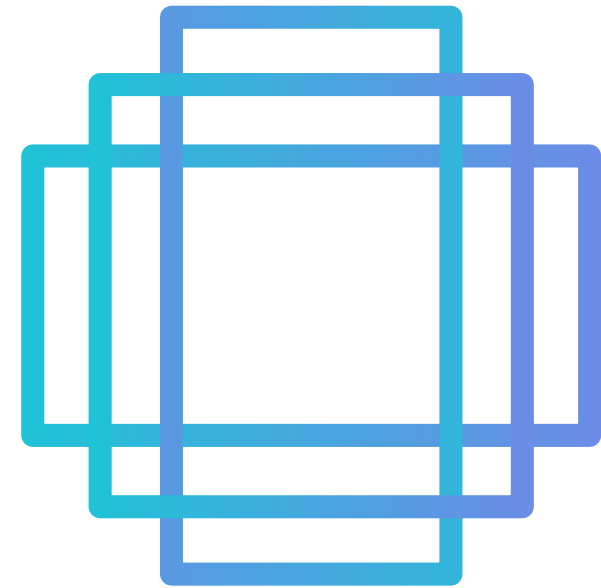
Software Rationalization Leads to Renegotiated Pricing

What the Client Needed

Over several years, our client consistently sought our team's technical expertise and support in **mainframe operations and applications**. The collaboration involved a variety of activities, including day-to-day operations and allocation of resources for specific projects.

The client also entrusted CPT Global with deploying a **significant software suite across different environments**, including mainframe, midrange, and open systems. The goal was to not only **boost the client's tech capabilities** but also result in a **significant pricing adjustment** compared to their previous contracts.

What CPT Delivered

Senior CPT team members collaborated closely with the client to plan and efficiently execute the **complete removal of the provider's software** from the environment within the designated 3-year license period.

The work involved:

- Developing a strong go-to-market strategy
- Skillfully managing vendors
- Creating compelling RFPs
- Conducting thorough evaluations
- Building a solid business case

Throughout this process, CPT worked closely with senior management, leveraging their expertise and insights. Together, we created a **comprehensive return on investment (ROI) model** showcasing the tangible benefits of software removal.

Value Achieved

When ROI outcomes didn't meet the bank's payback requirements, the client presented their concerns to the software vendor's senior management, **opening the path to renegotiate future pricing**.

CPT identified some quick wins and worked with teams to make progress on removing these products. The bank also engaged CPT resources to support longer-term product replacements.

The bank is currently renegotiating with the software provider to adjust future product pricing, while at the same time reducing their overall software footprint.

What is Software Rationalization?

Software rationalization is the process of evaluating and streamlining an organization's software portfolio to reduce costs, complexity, and redundancy while maximizing value. This effort leads to substantial benefits and a clear understanding of business needs and goals.

Here's how software rationalization works in most business cases:

- **Software Inventory:** Catalog all software on your z/OS system using SMF records and other tools.

- **Software Evaluation:** Assess tools based on cost, usage, value, and alignment with business goals. Identify obsolete or redundant software.

- **Strategic Planning:** Create a streamlined strategy for your z/OS environment, focusing on efficiency and cost-effectiveness.

- **Plan Execution:** Implement the strategy by retiring old software, introducing new programs, and updating to the latest versions.

- **Continuous Monitoring and Optimization:** Regularly review and adjust your software portfolio to align with evolving business needs and technological advancements.

> **Now let's take a look at how companies are lowering costs by reducing CPU consumption.**

Major Bank Saves $6.8M by Reducing CPU Workloads

What the Client Needed

A major financial client had **outsourced their mainframe operations for over 20 years**. As time passed, maintenance and operational **costs started to spiral**, straining financial resources.

Our team was assigned with reviewing CPU usage patterns to identify cost-saving opportunities. After careful analysis, we recommended changes that would potentially yield savings of up to 4% of total CPU capacity.

Additionally, CPT Global was entrusted with conducting an end-to-end review of the client's mainframe infrastructure. This involved **assessing existing systems, identifying areas of inefficiency, and proposing strategic changes** to enhance overall performance and operational efficiency.

What CPT Delivered

Over 14 months, we successfully identified several **low-risk opportunities to optimize total CPU capacity** on site that were not only easy to implement but also required no changes to existing applications.

Our team also diagnosed and resolved a system issue that tied up more than 90% of their mainframe, **freeing up system availability and helping the business avoid a hardware upgrade for two years**. This marked a significant milestone, as it was the first time in decades that the mainframe wasn't upgraded.

Value Achieved

In the end, CPT Global helped the client successfully verify and implement a significant **8% savings in total CPU capacity**. Additionally, our team managed to achieve a remarkable **10% increase in capacity without incurring any additional costs**.

By avoiding the hardware upgrade, **the client also saved a staggering $6.8 million in operational costs**, which was a massive return on their investment in CPT Global's services.

The project proved our team's expertise in identifying cost-saving opportunities and optimizing mainframe environments, resulting in a long-standing client partnership.

Effective Ways to Reduce CPU Usage

CPU consumption is crucial for IT and business, serving as the system's heart for executing instructions. However, excessive usage leads to increased costs.

Considering how much CPU consumption can affect your organization's expenses, finding effective ways to reduce these costs is essential. Here are a few strategies we use at CPT Global.

- **Load balancing** distributes workloads across multiple computing resources to prevent CPU overload. It's like a team of computers working together to handle the load, boosting performance, preventing lags or crashes, and prolonging hardware lifespan.

- **Deploying more efficient hardware** is another strategy to consider. Modern CPUs generally offer better performance per watt, making them more energy efficient. While this may require upfront investment, it can lead to significant long-term savings.

- **Optimizing your software** can lead to more efficient CPU usage, but it may involve refining code, eliminating unnecessary processes, and using better algorithms. As complex as it sounds, the end result is often a reduced CPU load and lower operational costs.

- **Implementing energy-efficient practices** such as virtualization and server consolidation can reduce power consumption. This improves resource utilization, cuts hardware requirements, and lowers energy costs.

- **Capacity planning** helps your business predict and meet its resource needs while avoiding over- or under-provisioning. Balancing resource allocation reduces waste and optimizes system performance, making budgets and operations more efficient.

- **Reducing your 4-hour rolling average (4HRA) threshold and Monthly License Charge (MLC) costs** are also effective strategies for optimizing CPU usage, leading to substantial savings and more cost-effective mainframe operations.

Conclusion

Modernizing your mainframe can yield significant savings and efficiencies, but it requires careful planning and execution. By working with a proven partner like CPT Global, you can navigate the journey confidently.

Our team of 150+ global experts, many with over 20 years of experience, have one mission: uncovering savings, risks, and opportunities for clients. As your independent partner, we're fully committed to delivering success on your terms.

Whether you're looking to maximize mainframe performance or explore new technologies, we offer clear-headed strategies backed by over 30 years of experience. Our expertise is highly sought after by global enterprises, where we tackle complex business challenges for Fortune 500 companies and 80 percent of the world's largest banks, making their systems more resilient, reliable, and connected.

Curious what we can do for you? Don't hesitate to reach out. We're always here to help.

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