Four Best Practices to Optimize Mainframe Software Costs

Get more from your mainframe to drive digital innovation and transformation
Executive Summary

Digital businesses depend on their mainframe to power both existing services and a new generation of innovative digital experiences. Or, in other words, to Run and Reinvent their operation. To meet these competing mandates while staying within existing budget parameters—even as transaction volumes grow—IT departments must use their mainframe as efficiently as possible. This paper discusses four best practices that IT staff can leverage to optimize mainframe software costs so that the organization can meet the demands of current and new workloads while conserving funds for innovation and digital transformation.

The Four Best Practices to Optimize Mainframe Software Costs

1. Identify mainframe software cost drivers and pull non-time-critical workloads out of peak periods

2. Model the cost impact and consequences of changes before making them

3. Use dynamic intelligent capping to reduce peak resource consumption without impacting business

4. Optimize your environment and costs for Tailored Fit Pricing (TFP)
Digital business is placing intense demands on the mainframe, amplified even further by macro-economic impacts.

As revealed in the 2020 BMC Mainframe Survey, volumes of data and transactions are growing and more than two-thirds of IT executives and technical professionals (68 percent) expect MIPS to rise. A full 90 percent of survey respondents see the mainframe as a platform for new growth and long-term applications. Additionally, agile development and DevOps continue to drive new workloads to the mainframe. 78 percent of respondents to the survey stated it would be helpful if they could update their mainframe applications more often.

Meeting these requirements would seem to call for increased spending—but the organization can’t afford to divert funds from other digital business priorities. Indeed, research suggests that fees for IBM software licensing, such as DB2®, IMS®, CICS®, and MQ, already account for about 30 percent of the IT budget.

To meet the demands of digital business without limiting or undermining the ability to deliver high-quality services, IT must find ways to operate the mainframe as cost-efficiently as possible.
The Mainframe Software Cost Optimization Imperative

It’s an exciting time to be in IT. New technologies, and the variety of ways in which end customers use them, demand that companies transform how they deliver services and support the business. Mobility allows anywhere, any-device productivity for unprecedented flexibility. Social platforms unlock new forms of collaboration and knowledge-sharing. Cloud computing can increase scalability, agility, and cost efficiency from the infrastructure to the application and service delivery. Big data analytics can make every part of the business smarter. Over time, the return on investment for projects like these can be tremendous—but the first task is to figure out how to fund them.

When executive examine IT budgets, their eyes are often drawn to the total cost of running a mainframe environment. There’s no question that it’s a big number, though this can be misleading because the cost of using mainframes isn’t distributed across multiple budget lines like other infrastructure elements. But the answer isn’t to go after the mainframe itself—it’s still the best way to deliver many services, it houses critical data and business logic, and the alternatives would likely be either costlier or less effective. The key is to optimize mainframe costs in a way that doesn’t impact services, enabling the continued support of current operations while freeing up budget to spend on IT innovation and evolution.

The first step is to understand the nature of the challenge. Mainframe hardware accounts for only 20-25 percent of the typical total mainframe cost for the enterprise, with another 25 percent going to personnel. By far the greatest factor in mainframe costs, accounting for 30–35 percent or more, is the cost of IBM software licensing fees.

This is a key cost to get under control—especially as IBM has continued to increase licensing fees by 4 to 7 percent per year while mainframe budgets stay the same or shrink.

Seeking to better manage mainframe software costs isn’t a new idea—at least in theory, the potential for savings is clear. The question has been, “how?”. Traditionally, IT leaders have lacked insight into the factors that drive mainframe software costs, with only opaque and confusing spreadsheets and SCRT (Software Cost Reporting Tool) reports to work with. The state of mainframe cost management at most organizations today is challenged at best, with poor visibility, inadequate tools, and high expertise required to even begin to optimize utilization. In this light, it’s no wonder that costs tend to rise. At the same time, this also means that there is ample room for improvement, and significant savings to be found through a new approach based on higher visibility, predictability, and automation.

Four best practices can help transform a company’s mainframe software cost optimization strategy to recapture budget for other projects without impacting existing service delivery.
Four Best Practices To Optimize Mainframe Software Costs

1. **Identify cost drivers and pull non-time-critical workloads out of peak periods**

To guide the mainframe software cost optimization process, for those shops licensing under a Monthly License Charge model, IT should begin by understanding the usage profiles driving the peak 4-hour rolling average (4HRA) used to calculate your MLC bills. What workloads are driving this cost? Do they all need to be running during that same 4HRA, or can some be moved to a lower-utilization period? In most enterprises, non-time-critical work contributes significantly to peaks simply because 1) IT lacks the visibility to identify it; and 2) IT lacks knowledge about what impact a change would have. Transparent, workload-aware reporting can help IT identify these workloads, pull them out of peak periods, and run them at another time to lower the peak 4HRA—while still completing each workload within an appropriate timeframe.

**Case Study:** At one organization, IT had planned their execution of database utility work at a non-peak time. In viewing reports of the workload drivers of their peaks, they discovered that the utility work finished execution during an hour that made up part of the 4HRA peak, which meant that IT had been unknowingly driving up costs with utility work. By rescheduling that work to start an hour earlier, they removed that processing from the peak and trimmed $100,000 per year in mainframe software costs.
2. Model the cost impact and consequences of changes before making them

Identifying potential changes is only the first step. Before proceeding, IT staff needs to have confidence in achieving the intended result—confidence gained by clear evaluation of both the cost impact of a change and any unforeseen consequences that may emerge. Depending on the infrastructure and workloads, a planned change might not yield the results expected, and other changes might prove more effective. A predictive modeling capability can help the team anticipate what will happen as the result of each change being considered, how the peaks and valleys will settle out, how mainframe software costs will be affected, and whether the change will merit the amount of work it requires.

**Case Study:** In examining utilization and cost driver reports, IT determined that some IBM DB2 work should be moved from one LPAR to another. Such an action requires measurable work for IT teams, and there was disagreement over whether it was worth the effort. By modeling mainframe software costs, they determined that the move would result in efficiencies gained of more than $150,000 per year. With a clear picture of the cost benefit, the IT organization gained broad support for making the change.

3. Use dynamic intelligent capping to limit peaks without impacting the business

A defined-capacity model can optimize costs, but it can also limit resources in a way that prevents critical work from being completed in the right time frame while meeting SLAs. This can lead to customer frustration, business problems, and a perception in the enterprise of IT ineptitude. To achieve the results but avoid the problems, IT should implement capping within the context of business impact. By using tools to manage the system’s built-in governance system automatically and dynamically, based on an awareness of the workloads being run and their role in the business, IT staff can avoid the problems that can come with manual approaches to capping.
**Case Study:** In this scenario, defined capacity settings totaling 811 MSUs in the company’s three LPARs caused high-importance business work to be capped and delayed in one LPAR, while there was unused capacity below the caps in the other two LPARs at that time. In addition, the majority of work being executed on the other two LPARs was lower priority work.

With intelligent capping, the software automatically recognized the cap impacting important business work on one LPAR, and dynamically lowered the caps on the other LPARs, using that capacity to raise the cap on the first LPAR. This provided sufficient capacity for the high-priority business work to run without constraint. The reduction in caps on the other LPARs delayed the less important work, creating an MSU limit of 650 MSUs, thereby reducing overall MSUs by 161. In a site where the monthly cost of their mainframe software stack is about $250/MSU, this represents an optimization of approximately $40,000 per month, while also mitigating the performance impacts of the important business work.

4. **Optimize your environment and costs for Tailored Fit Pricing (TFP)**

IBM’s Tailored Fit Pricing (TFP) models for IBM Z® offer more flexibility and simplicity than the current R4HA-based pricing model by enabling a shift to a consumption-based model for software license charges. Under TFP, future mainframe software costs will be based on consumption and costs over the preceding year. As a result, optimizing the workloads driving your TFP cost structure can help you lock in better pricing moving forward—allowing you to conserve funds for innovation and transformation.

Under the Enterprise Consumption Solution pricing model, customers pay for every MSU consumed in a year. MSUs are priced at a discounted rate beyond the previous year’s consumption, so establishing a lower baseline now will enable more cost-efficient growth. To do this, you can take steps such as tuning your SQL statements; creating/modifying applications and using systems management tools in which processing is eligible to be offloaded to zIIP processors;, using a resource-efficient monitor, reorganizing your databases with the most efficient tools, and right-sizing and monitoring your capacity.

Your costs under TFP will also take into account the average price you paid for the MSUs you consumed over the previous year. Lowering this rate now is another way to optimize your mainframe cost structure moving forward. The best practices discussed above will help you accomplish this.
Conclusion

As organizations aspire to become Autonomous Digital Enterprises, they will be balancing the funding of existing services and the creation of new ones. To help fund digital transformation and deliver strategic initiatives for businesses, IT must take control of escalating mainframe costs—without impacting critical services. The best practices discussed above can help optimize overall mainframe costs and maximize the value of existing mainframe investments without sacrificing service delivery.

For more information
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