



# STOP FIGHTING FIRES

## Get Proactive to Optimize Mainframe Application Performance

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## Automating application performance management enables you to ensure applications are operating at peak levels and allows you to be more proactive in identifying and resolving issues. Here is a phased approach to getting there.

Imagine you're a firefighter. You rush to the sight of a burning building. You see huge plumes of smoke, grab your firehose and start to spray toward the smoke. The problem is that all you can see is the smoke — the symptom, not the real problem. The fire might be right in front of you — or it might be 100 feet to the left or right. So where do you aim the water?

Does this situation sound familiar? If you're responsible for resolving mainframe performance problems, you probably feel much like a firefighter trying to figure out where the "fire" is when all you can see is the symptom. In most cases, the root cause of a performance problem is a poorly performing application or database, or the settings of a subsystem. Performance tuning and resource optimization are vital to maintaining an efficient mainframe environment, and minimizing the ongoing cost of using expensive mainframe resources.

Unfortunately, tracking down the cause of application-related problems has traditionally been a cumbersome, manual effort. Mainframes often run numerous batch jobs and also perform ongoing execution of individual transactions generated from a variety of applications. Manually identifying opportunities to make performance enhancing application and configuration changes is time intensive and difficult. So instead, in many IT organizations, the staff takes a firefighting approach — waiting until a performance crisis occurs, and then identifying the application or transaction that is causing the issue.

The reactive approach can be costly and disruptive. Poorly performing applications waste expensive mainframe resources and take up valuable staff time as people scramble to find and resolve problems. Waiting for performance degradation to cause end-user or customer-facing service outage is even more expensive and disruptive. Instead, the focus should be on proactively monitoring changes in performance to keep sparks from causing large fires. Additional proactive steps include working with application developers to share the results of performance tuning efforts, so that optimal performance is built into the application testing and quality assurance process.

Over the past 10 years, we have helped our customers replace firefighting with a more proactive approach to application performance management and application quality management (AQM). This article outlines a high-level proactive method for application development and performance tuning that ensures optimum performance of mainframe applications.

### IMPACT OF POOR PERFORMANCE

Poorly performing applications can wreak havoc in the mainframe environment. Employees, customers, and partners may be locked out of critical systems. A few years ago in Austria, automated teller machines at a major bank were down for an entire day. Customers were unable to get cash and perform other transactions. In another example, a global automobile manufacturer had a mainframe grind to a halt when a local garage owner

was using a suboptimal query to track down the location of a particular car for one of his customers. Fortunately, in both cases, the IT staff was able to identify the source of the problem quickly and modify the application logic, eliminating the problem.

You can calculate the cost of situations such as this in terms of the manpower it takes to find and resolve the problem and the mainframe downtime you experience. You can also identify the cost of suboptimized performance that results in over-consuming expensive mainframe resources either through more frequent CPU upgrades or higher monthly outsourcing bills, if you outsource any IT operations based on actual usage. Unfortunately, it isn't so easy to determine the impact on customer satisfaction, loss of revenue, and perhaps even legal liability.

## AUTOMATION IS THE KEY

Automating application performance management replaces many of the manual tasks with automatic tracking of an entire production batch and online system, detection of deviations from normal behavior, and collection of deep application performance metrics. Moreover, it notifies the staff of areas requiring further investigation. Automated solutions track applications across an enterprisewide complex. Consequently, analysts do not waste time scanning nightly production batch runs looking for problems, configuring standalone measurement tools, and reviewing the litany of reports that are generated. By helping you focus tuning efforts on the jobs with the biggest savings opportunities, AQM allows you to cut IT costs, improve business service levels, and achieve a maximum return on investment.

Automation is key. Mainframe environments can have thousands of batch jobs running nightly and millions of SQL queries coming in daily. With manual processes, it's impossible to track history and calculate resource usage to identify the top consumers. An automated

tool can look at all activities and funnel the issues down and present a manageable number for the staff to address. As a result, your IT people can use their time on the most critical issues.

## HOW DO YOU GET THERE?

At TRILOGexpert, we recommend a phased approach to automating application management that starts with performance tuning, then moves into a more comprehensive approach to enhancing the quality of applications before they are released to production. These are the three primary steps we suggest to our clients.

### 1. Performance Study

Start with a performance study of your production environment to identify tuning opportunities. To do this you need to install a tool that automatically identifies the objects that should be measured. The tool must be capable of identifying every object and determining what, why, and when to measure. It must also be able to alert the administrator when an activity exceeds a threshold or needs further investigation. Make sure the tool has a high degree of automation so you can eliminate unnecessary manual tasks and make more time available for analyzing and tuning. Conduct the study for a period of four weeks, allowing the tool to monitor the environment and measure performance of the appropriate objects.

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### 2. Analysis and Tuning

At the end of the four weeks, review the performance profiles that the tool has created and analyze 20 or 30 of the prioritized transactions to uncover application issues that affect performance. This process

takes about a week and provides insight into application changes that will eliminate specific performance issues. This information also allows you to calculate the potential savings that additional tuning can deliver — perhaps 25 or 30 percent. The savings can be substantial: If your environment has 10,000 MIPS (millions of instructions per second), winning back only 20 percent translates into 2,000 MIPS. This may mean you can postpone a CPU upgrade for six months or more. If you're outsourcing, it offers an immediate dollar savings by reducing your monthly bill.

### 3. Expand to Application Development

As you continue to analyze and tune applications over a three- to six-month period, you'll become familiar with the concept of application performance management and gain valuable insight into what performance tuning techniques work best in your environment. The next step is to apply the lessons learned to your application development process. This broadens the effort from application performance management to application quality management. This is where the real payoff exists, because it makes application performance part of the quality process. You incorporate performance into quality assurance testing to ensure that applications meet rigorous performance requirements before they go into production. This saves even more time for the operations team and minimizes the risk that an application will over-consume costly resources.

## MEETING THE NEEDS OF THE BUSINESS

The cost of suboptimized mainframe application performance is significant. Automating application performance management allows IT organizations to move beyond reacting to service outages, to be more proactive in identifying and resolving issues before they create larger problems. This effort also keeps

applications at peak performance to meet the business needs of your company and your customers. Manual approaches that use "firefighting" techniques are no longer viable in today's competitive business environment. Application performance management that is applied to the pre-production quality process offers a straightforward means of getting application performance management under control and ensuring that new applications coming on board meet the performance requirements of your business.

### ABOUT THE AUTHOR



**Osman Aykut**, in his role as chief technology officer for TRILOGexpert, is responsible for the creation, design, and implementation of enterprisewide solutions, R&D, and strategic partnerships with software vendors in the mainframe quality and performance management space. In addition, Aykut leads the technical and organizational management of development teams, senior consultants, and the technical support team. He is also responsible for maintaining relationships with all sales partners in Europe and the Americas.

## 5 BENEFITS OF APPLICATION QUALITY MANAGEMENT

Administrators have the ability to win back CPU and other mainframe resources to reduce operating costs.

Satisfaction increases for end users and customers, due to enhanced application performance.

IT staff productivity increases due to elimination of manual tasks.

CPU and other upgrades can be planned for more predictably.

Business risk is reduced.