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## Service Optimization:

How Mainframe Systems Management Can Deliver  
More Business Value at Less Cost

# Table of Contents

- Executive Summary .....1
- Service Optimization: Making Management Processes More Effective .....2
- Deliver the Highest Levels of Quality of Service .....2
- Reduce Costs for the Business .....3
- Reduce Risk for the Business .....3
- A Service Optimization Maturity Model .....4
- Getting Started: Service Assessments.....5

## Executive Summary

In their quest to deliver higher margins and more shareholder value, senior management teams are scrutinizing all areas of operating expense, including the operations portion of the IT department. Every area of IT operations is under scrutiny, particularly mainframes.

At the same time, expectations for IT service levels are higher than ever. The IBM mainframe hosts over \$1 trillion worth of business-critical application investments and 80 to 90 percent of the world's largest databases, and has become the central platform for the most important SOA initiatives and developments at many enterprises, according to a May 2008 report from Credit Suisse.<sup>1</sup>

Executives and managers responsible for IT infrastructures face a paradox: deliver higher service levels to support the business while cutting costs. To deliver more service at less cost, IT operations staffs need to become much more efficient – much better at extracting business value from the IT infrastructure. Mainframe infrastructure management activities are often overlooked as a source of savings and business value, but in truth they are rich with potential.

Service Optimization can help you tap this potential.

Service Optimization is a disciplined approach to increasing IT performance without increasing cost. It identifies underperforming infrastructure management processes within the data center, and then systematically makes them more effective by means of best practices and intelligent automation.

Service Optimization can:

- > deliver higher service levels, by improving systems availability and performance.
- > leverage productivity gains, by enabling the data center to manage more resources and more workloads with current headcount; and by stripping costs out of the most expensive resources (CPUs, MIPS, storage, and software).
- > reduce risk to the business, by reducing or eliminating system outages.

BMC Software has developed a Service Optimization Maturity Model that can help you through the process of implementing Service Optimization and moving up the maturity curve. This model includes Service Optimization assessments for systems management: short (20-30 questions) assessments that can be completed in less than a day, putting you on the fast track to Service Optimization.

To learn more, visit the BMC Service Optimization Knowledge Center at [www.bmc.com/save](http://www.bmc.com/save).

Managers of IT infrastructures face a paradox: deliver higher service levels to support the business while cutting costs.

IT organizations have been asked to reduce annual expenses by an average of 15% in 2008. Meanwhile, they are being asked to support as much as 25% growth in transactions and to accelerate the delivery of new business services that generate revenue and help improve margins. IT infrastructures in particular are a target: while senior management is usually willing to invest in applications that help the business, they view infrastructure as an expense that offers little benefit beyond “keeping the lights on.”

For IT managers responsible for managing mainframe operations, the paradox creates new pressures:

- > Your staff is already handling more than double the number of MIPS per technician as it did five years ago.
- > You face the continued problem of the “mainframe brain drain” as your most experienced technicians retire with their critical skills and intimate knowledge of your mainframe systems environment.
- > You’re dealing with more application and transaction complexity, particularly with the introduction of more multi-tiered, customer-facing applications and their underpinnings (application servers, messaging servers, and transaction servers) into the data center.
- > You are experiencing greater hardware and software complexity, from such trends as consolidation of Linux on the mainframe and the increasing use of specialty processing engines to offload z/OS systems and reduce mainframe TCO.

To deliver higher service levels at less cost, you need to become much more efficient at systems management — much better at extracting business value from finite resources.

IT organizations that can become more efficient can deliver significant value to the business, according to recent industry surveys. This value includes not only higher margins, but also freed-up IT dollars that can be channeled to developing new applications or business services that improve the bottom line.

The big question: what’s the best way to become more efficient and make the infrastructure more productive, given the reality of staffing and budget constraints?

## Service Optimization: Making Management Processes More Effective

The answer is Service Optimization.

Service Optimization is a disciplined approach to increasing IT performance without increasing cost. It makes you more

efficient by improving the effectiveness of underperforming management processes in the IT infrastructure. It uses a combination of intelligent automation<sup>2</sup> and best practices, and it takes advantage of advanced technologies that may already be resident in your shop — or are relatively easy to acquire and cost-justify.

Service Optimization can dramatically increase the business value and cost savings you can deliver from your systems management processes. Service Optimization optimizes these processes to improve mainframe availability, productivity, performance, and risk mitigation in ways that strategically benefit the business.

Service Optimization can help you:

- > Deliver the highest levels of quality of service
- > Reduce costs for the business
- > Reduce risk for the business

## Deliver the Highest Levels of Quality of Service

Service Optimization enables delivery of the highest levels of quality of service by optimizing the availability and performance of your mainframe. It can help you reduce planned outages (through faster processing that affects application windows) and unplanned outages (through prevention or faster resolution of incidents).

For example, many IT shops still monitor mainframe availability by having technicians watch consoles and react to alarms when they appear on screen. The problem with this approach is that by the time an alarm appears, service to the business has often already been affected — becoming noticeable to your customers and setting off a chain of events that involves the service desk. This process can lead to outages, and it wastes a lot of time and money.

A technique called intelligent alarm management would enable an IT shop to modify its monitoring process so that it automatically looks for conditions that indicate a problem, responds, and fixes the underlying problem. This process improvement would eliminate outages or reduce their duration, by reducing the need for technicians to intervene and lowering the risk of human error often caused by manual intervention.

A leading telecommunications company avoided an increase of more than \$5 million in people costs over a three-year period by automating and optimizing performance monitoring of the company’s mainframe. The company was able to add thousands of new customers without adding any IT resources, while improving service levels.

Another common underperforming process is batch operations management. Estimating and managing batch windows manually is incredibly time-consuming and imprecise, and may result in batch-job overflows that jeopardize billing systems or other critical business processes. By using intelligent automation, IT shops can enable batch-job management processes to dynamically optimize themselves. For example, intelligent automation can scientifically break up and distribute batch workloads across different systems, enabling work to be done in parallel to shorten batch windows. By using batch optimization, one very large Wall Street organization was able to reduce its batch window for a critical process from 26 hours to 6 hours.

### Reduce Costs for the Business

Service Optimization reduces costs for the business by leveraging productivity gains to do more with fewer people, to strip costs out of the most expensive resources (CPUs, MIPS, storage, and software), and to scale to accommodate higher levels of workloads without adding people or hardware.

By aggressively automating performance monitoring, you can manage much larger environments with current headcount. Intelligent automation lets you create standardized, repeatable processes (boosting productivity and reducing the chance of human error), lessen your reliance on skilled experts and their “wizardry,” and make staff more easily deployable across different silos and disciplines to meet the needs of the business. For example, a large multi-national financial services organization has automated its monitoring so much that it is able to manage its mainframe environment (28 production LPARs and 30 test LPARs) using only eight operations staff.

The benefits of mainframe service optimization extend beyond the mainframe environment. For example, another organization was experiencing a problem in which a distributed application was creating multiple instances of a transaction, using up mainframe CPU cycles and slowing customer response time. Using intelligent automation, the mainframe team was able to create a routine that automatically recognized the problem, cancelled the extraneous instances, and notified the service desk — all before the customer was affected.

By automatically detecting and solving problems, you can eliminate wasted CPU cycles or overuse of storage resources, thereby postponing the need for expensive upgrades.

You can also make technicians much more individually productive by, for example, providing a single system image through which they can view and manage multiple monitors that use a consistent interface, or letting them troubleshoot problems from home via a Web browser. The technologies exist for this advanced level of automation, as well as for lowering your overhead by running systems management right on the mainframe — eliminating the cost of additional, dedicated management servers.

### Reduce Risk for the Business

Service Optimization reduces risk for the business by using automation to avoid business risk and to reduce the time and cost of meeting regulatory compliance.

A key area of risk for businesses is application outages. With the average cost of downtime ranging from \$1.495 million/hour for financial institutions to \$2.066 million/hour

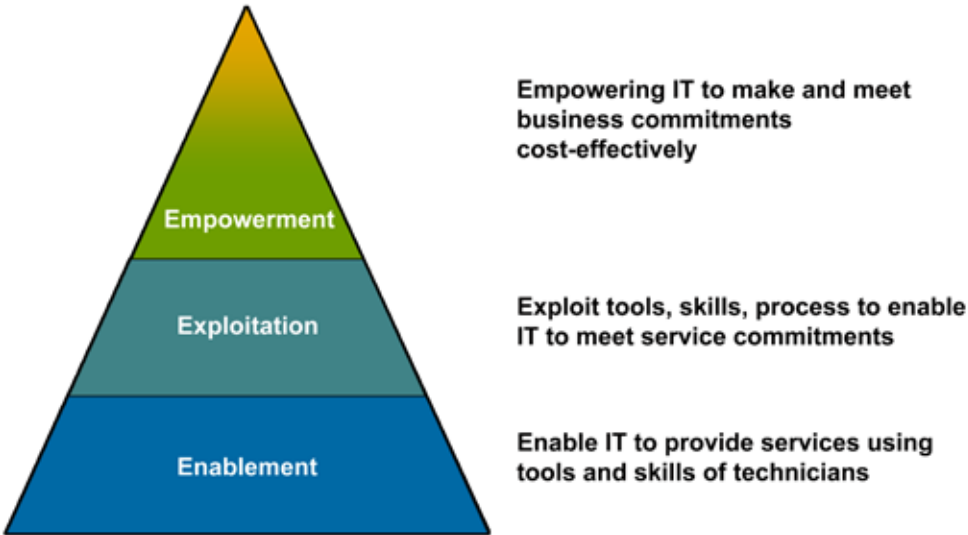


Figure 1: The Service Optimization Maturity Model helps IT operations teams systematically improve the business value of the infrastructure, by making strategic management process improvements.

for telecommunications companies to \$6.450 million/hour for brokerage operations, no business can afford to be down for long. By intelligently automating processes for rapid problem identification and resolution, businesses can dramatically reduce the risk from application outages.

A leading cruise line has implemented a highly automated approach to monitoring the performance of its mainframe, which hosts the company's mission-critical reservation system. By creating a hierarchal view of its whole system, the cruise line enables its technicians to more quickly get to the root cause of problems in transactions — which are initiated from different regions, including the Web and 700 to 800 reservation-agent desktops.

The company has been able to dramatically reduce the time to identify problems, make fixes, and get applications back into production quickly — enabling IT to meet its SLAs for 99.9% uptime and 0.35-second response time. The company has also created a view of the system that lets senior management see on a daily basis how transactions relate to revenue and other business goals.

Process improvements can also help in the area of regulatory compliance. Consistent, highly automated systems management processes capable of mining transaction logs can help speed compliance with audits and demonstrate to auditors that the IT organization has good practices in place.

A Service Optimization approach lets you achieve all three of the business benefits discussed above: deliver high-quality service, reduce costs, and reduce risk.

## A Service Optimization Maturity Model

BMC Software has developed a three-step Service Optimization Maturity Model that helps IT operations teams identify and improve their highest-leverage management processes. The steps build on one another, taking an IT organization from providing services to providing services with the utmost cost-effectiveness. (See Figure 1.)

The three steps are:

- > Enablement
- > Exploitation
- > Empowerment

Here is an example of how the Service Optimization Maturity Model could help the mainframe IT operations team dramatically improve the efficiency of transaction management.

**Enablement:** In the Enablement step, you put in the base tools and processes that allow your technical staff to be more productive and effective in the delivery of their day-to-day tasks, and establish the baseline for further process improvements.

In the case of transaction management, technicians have monitors that let them drill down quickly into individual sub-systems (databases, transaction monitors, and message servers) when the service desk reports a problem with a business transaction. The benefit of this improvement would be better system performance and reduced duration of outages. However, the process is still reactive (the team is responding to a customer-reported problem) and too manual and labor-intensive (troubleshooting the problem involves getting multiple people into a “war room” to manually identify the root cause across the various technology silos).

**Exploitation:** In the Exploitation step, you make process improvements that enable your staff to be more proactive and to meet defined service commitments based on business requirements.

You could deploy thresholds in your monitors that are calibrated to the business applications involved in the transaction. When application activity causes a threshold to be reached, the monitors alert the technicians. They still would need to collect the information and go into the war room, but the problem-resolution process is faster. As a result, the team may be able to reduce the duration of the outage or solve the problem before service to the customer is severely disrupted.

By taking a more application-focused approach to transaction management, you could eliminate some outages and ensure successful completion of more transactions.

**Empowerment:** In the Empowerment step, you empower IT not only to make service commitments but also to meet them more cost-effectively.

By creating an automated transaction-analysis process calibrated to the business applications, you could automatically

identify the problem and notify key technicians. They use their monitors to drill down to the root cause, fix the problem, and report its resolution. Further, if it appears to be a recurring problem, a technician can write a rule that will automatically fix the problem in the future — before it affects the customer or hits the service desk.

By taking this highly intelligent automated approach, you can eliminate most outages, reduce the need for the war room, and reduce the risk of disruption to business services.

With each level of Service Optimization maturity you attain, you become more effective. You can deliver higher service levels while saving money — often significant amounts of money. You move much closer to being able to maximize the business value of IT and reduce TCO.

As your management approach evolves from reactive to proactive to service-oriented, you and your team become a much more valuable partner to the business. It becomes much easier to achieve ever-more-strategic alignment with business goals, including Business Service Management, and to demonstrate this progress to senior management.

## Getting Started: Service Assessments

To get started with Service Optimization, you should first assess your portfolio of systems management processes.

Ask yourself these kinds of questions:

- > Which processes generate the most calls from the business units or the CIO when they break?
- > Which applications or transactions are most costly when they break or don't complete?
- > Which processes take the most time and effort from my staff to maintain or troubleshoot?
- > Which processes are still too manual or too dependent on highly skilled mainframe technicians?
- > Which resources cost the most and could most benefit from being "managed down"?
- > Where could modified or additional monitoring processes optimize the mainframe environment and use it to deliver the most valuable service to the business?

By asking yourself these and other questions, you can start to identify underperforming processes that could most likely benefit from Service Optimization. Then you can use best-in-class tools and established best practices (including ITIL® or COBIT) to streamline these processes and automate them to make them more efficient.

BMC has developed Service Optimization assessments for systems management and other management disciplines. These are short (20-30 questions) assessments that can be completed in less than a day, putting you on the fast track to Service Optimization.

BMC solutions were built for the largest, most complex data centers specifically to provide high availability and performance, and they are used by 98 of the *Forbes* Global 100 companies. Our Service Optimization Maturity Model is based on our extensive field experience working with customers since 1980 to make their IT infrastructures more responsive to business needs.

To learn more, visit the BMC Service Optimization Knowledge Center at [www.bmc.com/save](http://www.bmc.com/save).

## End Notes

- 1 Equity Research Report, Software IQ: Mainframe's Alive!, Credit Suisse, May 14, 2008.
- 2 Intelligent automation is automation that has native intelligence of the environment and uses technologies such as advanced monitors, sophisticated alerts, advisor technology (which quickly identifies performance problems and makes expert recommendations for corrective action), and automated responses.



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### About BMC Software

BMC Software delivers the solutions IT needs to increase business value through better management of technology and IT processes. Our industry-leading Business Service Management solutions help you reduce cost, lower risk of business disruption, and benefit from an IT infrastructure built to support business growth and flexibility. Only BMC provides best-practice IT processes, automated technology management, and award-winning BMC Atrium technologies that offer a shared view into how IT services support business priorities. Known for enterprise solutions that span mainframe, distributed systems, and end-user devices, BMC also delivers solutions that address the unique challenges of the mid-sized business. Founded in 1980, BMC has offices worldwide and fiscal 2008 revenues of \$1.73 billion. Activate your business with the power of IT. [www.bmc.com](http://www.bmc.com)

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