



## I D C   A N A L Y S T   C O N N E C T I O N



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### **Monitoring Mainframe Performance: Optimizing the End-User Experience**

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*Today's mainframe environments are increasingly driven by applications and transactions that directly support end-user access to mainframe subsystems and databases. The explosive growth of handheld and mobile devices for access is generating high volumes of traffic adding more demands such as peak loads, high transaction volumes, and increased complexity. IT organizations must be able to satisfy "digital age" expectations for performance and availability in line with what users are accustomed to experiencing in consumer-facing applications. To do this, IT organizations must be able to monitor performance across a wide range of mainframe infrastructure components, as well as be able to identify impending problems and take quick actions to prevent slowdowns or outages before they can impact users.*

The following questions were posed by BMC Software to Tim Grieser, program vice president of IDC's Enterprise System Management Software service, on behalf of BMC's customers.

- Q. Why is mainframe monitoring software more than just a commodity product?**
- A. Mainframe monitoring software provides important capabilities essential to managing the performance, availability, capacity, and overall service health of mainframe infrastructure and workloads. These functions are gaining even more importance with the explosive growth of handheld and mobile device access to mainframe applications, transactions, and databases. While monitoring can be done at a basic level with simple measurement and reporting of operational data, far more value can be obtained with the use of monitoring software that provides extended features such as support for workload capping, operational simplicity, and lower operational costs. Monitoring software should provide ways to proactively manage performance and availability so that potential service delays or interruptions can be detected and prevented before they impact users.
- Q. How can monitoring solutions help improve mainframe economics?**
- A. Monitoring solutions can improve the economics of the mainframe by helping reduce operational costs and improve service levels. Using monitoring to understand when and how mainframe MIPS/MSUs are being consumed is an essential part of a mainframe cost control program. Smart monitoring software can reduce the time needed to detect, diagnose, and repair problems. It can also save staff time and avoid slowdowns or outages that can impact users and often result in lost revenue.

Monitoring data can be used to understand usage trends over time — such as increasing MIPS/MSU consumption — so that IT organizations can properly size and provision mainframe resources. Another way monitoring software can help improve mainframe economics is to reduce or optimize the resources consumed by the monitoring software itself, thus reducing the TCO of monitoring. This can be achieved by such actions as using specialty processors to run monitoring software and reducing the footprint required for the monitoring software.

**Q. What are some best practices for proactive mainframe monitoring?**

A. Monitoring software is typically used to determine ongoing usage metrics, detect exceptional conditions such as spikes in processor utilization or performance slowdowns, and generate alerts and alarms based on operational thresholds to warn of impending problems. Alerting is often based on a set of static thresholds set by default or manually entered by administrators.

A best practice is to use variable or "dynamic" thresholds set by software that analyzes usage patterns from monitor data by day, week, or even month and sets "normal" thresholds based on typical activity. This self-learning approach greatly reduces the frequency and volume of alerts and alarms. It addresses the "cry wolf" situation where an uptick in activity triggers an alarm even when the activity level is normal for the particular time period. It also greatly reduces the amount of staff time needed to set and manage thresholds — often cited as a major problem area — thereby providing benefits for time and cost reductions.

Another best practice that increases the value of monitoring is to monitor transactions across systems and subsystems and provide consolidated systemwide views. This provides the basis for optimizing resource usage across workloads. It also enables IT operations to gain more rapid insights into emerging problems and helps reduce the time needed to diagnose and repair problems as they occur. Use of automation to control and schedule monitoring functions is another best practice. Automation can reduce staff time used to manage monitoring and can also increase the speed with which monitors can detect impending problems and generate alarms. Automation can also be used to perform rapid and efficient problem resolution by automatically taking actions to prevent or remediate specific problem conditions.

**Q. How can monitoring help the mainframe support digital business applications?**

A. Digital business applications place major new demands on mainframe-based workloads. Digital applications such as online banking are typically accessed using handheld or other mobile devices. Users of digital applications expect real-time response to interactions, some of which may require access to mainframe subsystems or databases. Interactions from these sources can generate very high volumes of transactions, often with unexpected or unpredictable arrival patterns, which can drive up licensed software costs.

These new usage patterns generate challenges for mainframe monitoring solutions. Monitors must be able to quickly recognize the systemwide impact of spikes in digital transaction volumes so that operations can make sure these workloads get sufficient resources and priority to satisfy demands. Monitors should also be able to differentiate short duration spikes from major increases in ongoing workload resource consumption that can be controlled by intelligent use of workload capping.

The speed of digital business requires rapid and consistent performance across a wide range of systems, devices, and applications. Automation can be used to perform a number of tasks to help prevent performance issues, such as cancelling or stopping jobs or transactions that are consuming excessive amounts of resources, automatically gathering diagnostic information, and sending notifications of impending performance problems before they impact end users.

**Q. How can mainframe monitoring efforts be effectively delivered as IT staff skill sets undergo change?**

A. Much has been made of mainframe "skill set" concerns as the pool of highly trained specialists continues to shrink. A number of approaches address this problem, including training, in-house apprenticeship, and even college classes. However, in terms of monitoring software, products that provide a "modern" graphical user interface and graphical representations showing views of systemwide resource consumption with drilldowns into specific components can offer a valuable solution for the nonexpert administrator. An example of effective graphics is the ability to view performance and availability of subsystems both individually and in the context of overall systems activity. While "green screen" interfaces are still widely available, Web-based graphical interfaces with intuitive operation can be used by a much broader class of IT administrators and can provide efficiency benefits to experienced administrators as well. Automation can add value by streamlining and simplifying monitoring operations.

**ABOUT THIS ANALYST**

*Tim Grieser, program vice president, Enterprise System Management Software, is responsible for system management software research in IDC's Enterprise System Management Software program. His coverage includes software for managing systems and applications across a wide variety of platforms. A key focus area is ebusiness and distributed application performance and availability, especially Web application response time from the end-user perspective.*

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