



OPTIMIZE TRANSACTION PERFORMANCE AND IMPROVE BUSINESS RESULTS

Extend the value of BMC Performance Manager
with BMC Transaction Management

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BMC Software provides solutions that enable companies to monitor end-user transactions, pinpoint the cause of failures, and then diagnose the problems. This paper describes how a fictitious manufacturing company uses these BMC Software solutions to improve its ability to detect and resolve problems in its order-entry and customer management processes, which span both distributed and mainframe systems, thereby adding measurable value to the business.

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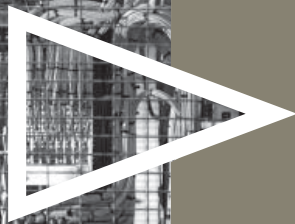
Synthetic performance monitoring is a process that measures application availability, accuracy, and performance, monitors the end-user experience, and provides early warning of problems as they develop. When combined with component, network, and application-specific tools, such as BMC Performance Manager products, you get a more intelligent view of your enterprise IT infrastructure, as well as its ability to deliver services critical to your business.

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A highly competitive, response-time solution ensuring the quality of service (QoS) of mission-critical applications, BMC Transaction Management Application Response Time (BMC TM ART) is among the best in class in performance and availability monitoring. By monitoring end-user experience on three dimensions (availability, performance, and accuracy) and by using advanced analytics, advanced diagnostics, and historical data comparisons, BMC TM ART enables administrators to take proactive, corrective actions before serious performance slow-downs or outages occur.





Managing IT Performance and Availability from an End-User Perspective

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Executive Summary

As companies mature their IT operations, they know more about the performance of their networks, applications, servers, databases, and mainframe systems. However, reliable information about end-user experience remains elusive. This information is vital to gauge how well IT is adding value to the business. Obtaining reliable information about the end-user experience is just the first step. To add measurable value to the business, companies need to detect the problems experienced by end users, isolate those problems, diagnose the root causes, and then fix the problems.

BMC Software provides solutions that enable companies to monitor end-user transactions, pinpoint the cause of failures, and then diagnose the problems, whether they originated in a distributed application, a database, a server, or a mainframe system. BMC® Transaction Management Application Response Time provides the synthetic transaction monitoring that helps companies understand the end-user experience, while BMC® Performance Manager enables in-depth monitoring and management of applications, databases, and servers. For mainframe systems, BMC® MAINVIEW® Transaction Analyzer uses data from other BMC MAINVIEW monitoring products to track and correlate the resources used by complex transactions across multiple mainframe systems. This paper describes how a fictitious manufacturing company that manufactures oil-field tubing and valves — called International Tubing — uses these BMC Software solutions to improve its ability to detect and resolve problems in its order-entry and customer management processes, which span both distributed and mainframe systems. These improvements help the company reduce downtime, increase customer satisfaction, and generate more repeat sales.

BUSINESS SCENARIO

To show the benefits of leveraging BMC infrastructure monitoring solutions with end-user transaction monitoring, this paper shows how a fictitious company, International Tubing, addresses the major transaction management issues faced by IT organizations.

International Tubing makes oil-field supplies. The company relies upon its field sales staff to visit customer sites in the oil field or at remote offices. The field sales staff assess the customers' needs and enter orders for oil-field parts, such as well tubing and valves. International Tubing also maintains an online store, where customers can enter orders directly.

The business environment is dynamic. Tubing and valves are in high demand. Customers who lack drilling supplies can lose a significant amount of money while oil-field workers wait for supplies.

International Tubing uses a real-time, Web-based, online parts-ordering application that is integrated with its inventory and customer management applications, which are supported by a legacy mainframe system. To complete a successful online order, International Tubing requires that many separate processes complete successfully. For example, the system must successfully check equipment availability, parts availability, and customer credit. It must also record order time and expected delivery time. These processes span multiple distributed and mainframe systems. If any of the processes fail, the order cannot be completed.

Monitoring the Distributed Infrastructure

To help the company manage its complex distributed infrastructure, the IT staff at International Tubing uses BMC Performance Manager for Siebel eBusiness Applications and BMC® Performance Manager for WebSphere Application Server to monitor Siebel applications that run on WebSphere Application Servers. These application servers generate the customer-facing Web pages for the company's online ordering applications and provide customer management functions.

International Tubing values the in-depth monitoring and management functionality provided by BMC Performance Manager. The mobile client and log file monitoring is especially useful, because the fieldsales staff use laptops or handheld computers to enter and track orders while at customer sites.

International Tubing uses SAP for procurement and inventory management. The company monitors the performance of its SAP applications using BMC®

Performance Manager for SAP Solutions. It monitors overall availability and component availability, including the SAP Enterprise Portal landscape and connectivity to back-end systems.

By implementing the easy-to-use remote monitoring and the robust agent-based monitoring provided by BMC Performance Manager, International Tubing has been able to quickly detect and fix problems within its SAP, Siebel, and WebSphere servers, as well as its supporting applications and databases.

Monitoring and Managing the Mainframe

To help the company monitor the CICS environment that links its Web interface to its legacy mainframe inventory applications, it uses BMC® MAINVIEW for CICS TS and BMC® MAINVIEW for DB2.

BMC MAINVIEW for CICS TS monitors the overall performance of CICS and the transactions executing within CICS. It matches, in real time, the system environment to the actual workload being processed. It dynamically manages and tunes CICS system parameters and resources to address performance issues before they cause problems.

BMC MAINVIEW for DB2 monitors the performance of the legacy DB2 inventory database and the SQL statements executing against the inventory data.

By using BMC MAINVIEW to automate the management and monitoring of their mainframe systems, the CICS system programmers and DBAs have been able to spend more time on critical projects, and less on finding, diagnosing, and correcting problems.

Problem: End Users Report Performance Problems

Even when BMC Performance Manager and BMC MAINVIEW correctly show that the IT infrastructure is performing properly, the end users of International Tubing's online applications often report performance problems before IT has detected a problem. Thus, even though the individual IT components are functioning adequately, the system as a whole is not performing as expected.

Problems reported by end users have been difficult for IT to diagnose. Because the help desk usually can not isolate the problem to a specific server or even to an application, the IT operations manager must conduct expensive and time-consuming conference calls with the application, network, database, and mainframe administrators. Often, these conference calls become finger-pointing exercises.

Recently at International Tubing, performance and availability problems have decreased productivity among the sales staff and have hurt customer satisfaction in several key accounts. These problems also have led to friction in the IT department and between IT and the application developers.

Solution: Monitor End-User Transactions

Because of these problems, International Tubing recognized that it needed to improve the end-user experience. The company decided to establish end-user transaction monitoring, in addition to the infrastructure monitoring already in place for individual applications, databases, networks, servers, and mainframe systems. Transaction monitoring provides response-time data for analysis and review and enables the company to quickly detect service degradation. To implement enterprise-wide transaction monitoring, International Tubing chose BMC

Transaction Management Application Response Time (BMC TM ART) for its synthetic transaction monitoring and BMC MAINVIEW Transaction Analyzer (BMC MVTA) for detailed transaction analysis on its mainframe systems.

USING BMC TM ART TO MONITOR SYNTHETIC TRANSACTIONS

BMC TM ART enables companies to measure the performance of business applications by executing business transactions and monitoring response times. With BMC TM ART, International Tubing determined high-level application transaction response times and the time for individual steps within a transaction. BMC TM ART uses robotic transactions to gather this application-level data. Using this data, International Tubing correlated the technical viewpoint to end-user perception and the business impact.

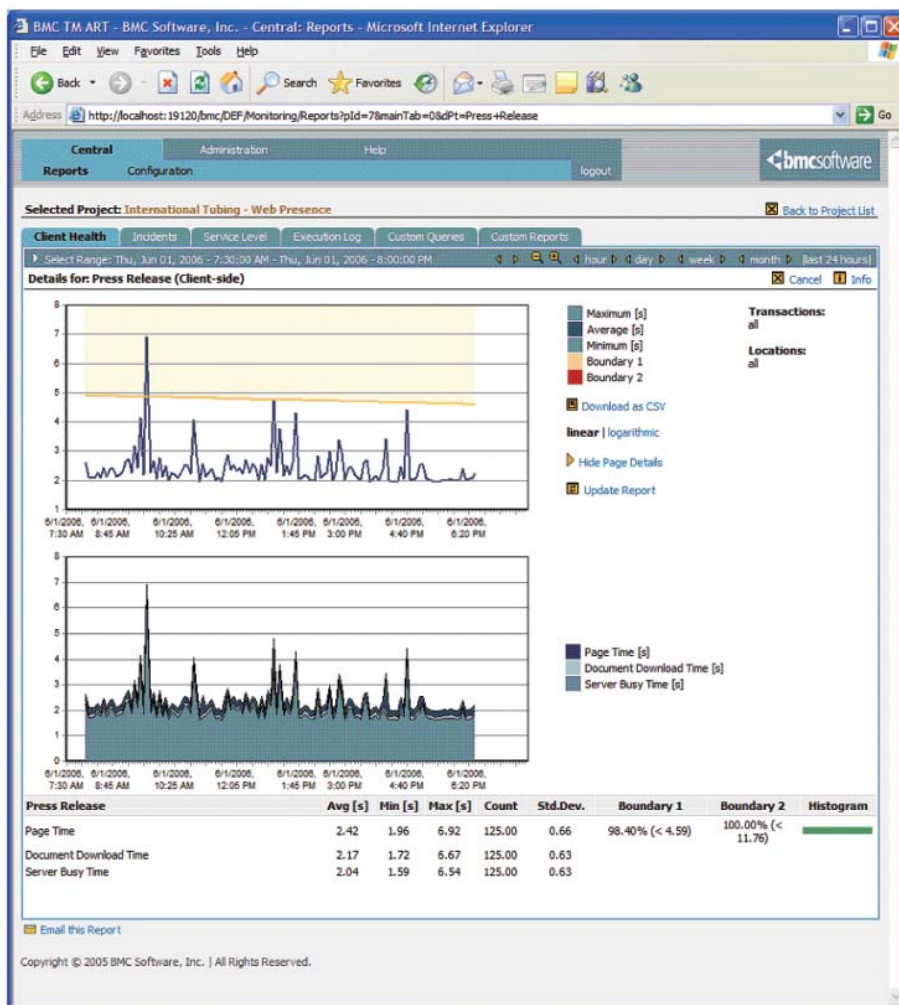


Figure 1: Using BMC TM ART to Monitor a Transaction

International Tubing believed that combining synthetic transaction response-time data with the local data it already collected through BMC Performance Manager provided a complete picture of its distributed IT operations. The company could monitor within silos using BMC Performance Manager and across silos using BMC TM ART.

Example: Monitoring a Transaction

Figure 1 on page 7 shows a transaction, named Press Release, that International Tubing monitors using BMC TM ART. The first graph in Figure 1 shows that the transaction response time breached the threshold at approximately 9:30 a.m. The second graph in Figure 1, which shows the response time for the individual components that contribute to the overall response time, shows that server busy time contributed the largest share of the overall response time. Using this information, IT concluded that the problem was probably associated with the application server, not the client or the network. To diagnose the problem further, they used BMC Performance Manager to analyze the application server in detail and discovered a memory leak.

Thus, by using BMC TM ART to monitor across silos, they detected a problem with a business transaction. Then, by using BMC Performance Manager to monitor within a silo (the application server), they resolved the problem.

Some of the features of BMC TM ART are as follows:

- > Provides response-time data to support Service Level Management (SLM) objectives
- > Supports common applications such as SAP, Siebel, and PeopleSoft
- > Supports Windows-based client/server, Citrix, 3270, and rich-client applications
- > Monitors Web applications including portals, CRM, e-mail, and custom applications

The features that International Tubing found particularly valuable are described in the following sections.

Dynamic, Intelligent Thresholds Simplify Administration

BMC TM ART optionally provides dynamic, intelligent thresholds that save time and effort by eliminating the need to set hundreds of thresholds manually. BMC TM ART sets the thresholds based on historical trends and dynamically adjusts them as it captures more data.

Dynamic thresholds helped International Tubing implement service level objectives (SLOs). Because the company did not know its normal, baseline response times, it could not set realistic service level objectives (SLOs) or identify the areas that needed improvement. The dynamic threshold functionality of BMC TM ART calculates the normal response time and sets dynamic boundaries at the second and third standard deviations from the normal transaction response time. BMC TM ART creates these boundaries for both the complete business transaction and for each step within the transaction. With these boundaries defined, the IT staff at International Tubing could have discussions with their business managers about realistic SLOs and set static boundaries to manage the agreed-upon service levels.

Dynamic boundaries also allowed the company to identify slow steps within a transaction and resolve the problem before it affected the overall transaction response time. To resolve the problems that BMC TM ART detected, International Tubing made investments in its architecture, which had an immediate, positive effect on performance.

Views that Help IT Diagnose Problems

Before International Tubing implemented BMC TM ART, it could not easily detect and resolve problems. Conference calls to diagnose problems often erupted into finger-pointing exercises in which each IT functional area would produce charts that showed that their performance was acceptable.

A lack of information contributed to the confusion. End users who reported problems to the help desk often did not provide an adequate description of the symptoms largely because they failed to write down the error messages that they observed. With the TrueLog error messages provided by BMC TM ART, IT had access to the actual error message that the end user saw, which helped IT diagnose problems faster.

BMC TM ART also provides summary reports that show the overall status of business transactions. Figure 2 on page 9 shows the status of the business transactions at International Tubing. This report shows that the online store experienced an incident that affected availability at approximately 11:15 a.m.

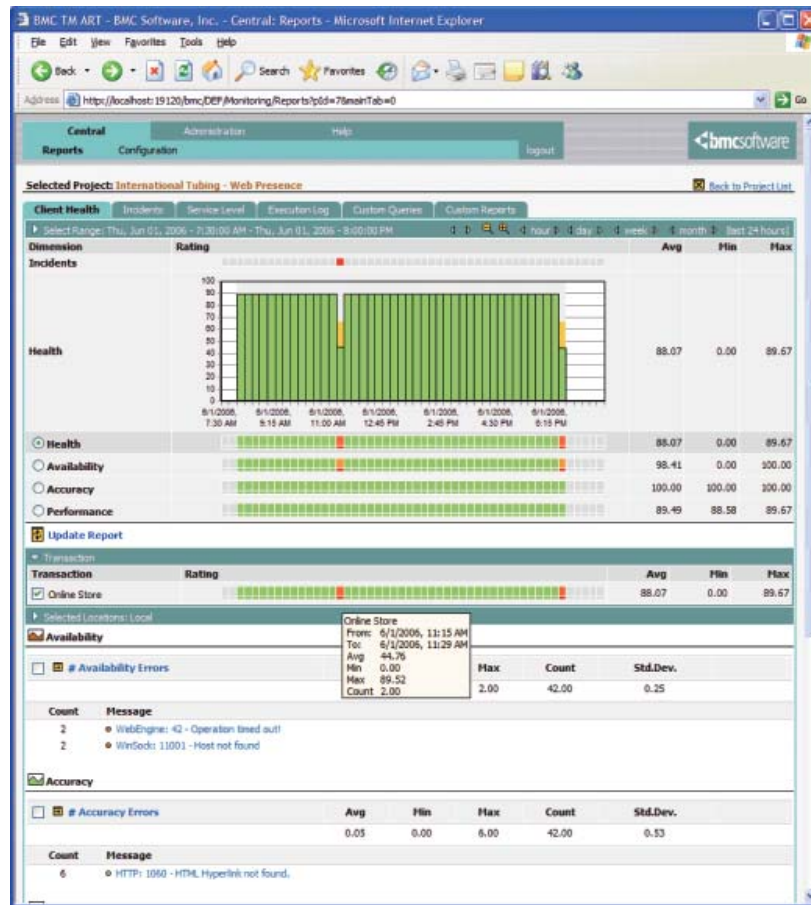


Figure 2: BMC TM ART report that summarizes overall business transaction status

Extensive Protocol Support that Enables Recording and Scripting

Because International Tubing uses a variety of packaged and custom applications to support the business, it needed a synthetic transaction monitoring solution with which it could easily record transactions into scripts for a variety of applications. BMC TM ART supports a wide range of protocols, including those for the Web, internet, Web services, middleware, databases, open interfaces, and CRM/ERP applications. This protocol support enables companies to record and edit transaction scripts for all of their applications, including Web, mainframe, thick client, thin client, packaged and custom.

Because International Tubing uses a mix of distributed and mainframe systems to support its critical business applications, the ability to develop transaction scripts for the mainframe is an important advantage. Using BMC TM ART, the company can capture and run mainframe-based transactions using the 3270 user interface.

International Tubing also uses several homegrown applications to support its online store. Even though these applications do not use standard protocols, the company

can monitor them with SilkTest for BMC TM ART by Segue Software. This add-on product to BMC TM ART provides a powerful scripting language that enabled International Tubing to capture transactions from its custom Windows-based applications and easily simulate end-user transactions at the GUI level.

End-User Perspective that Complements Infrastructure Monitoring

For International Tubing, the integration between the BMC transaction-monitoring and infrastructure-monitoring solutions is a significant benefit because these solutions complement one another and add additional value when used together.

BMC TM ART and BMC MVTA enable International Tubing to monitor from the perspective of the end user. This perspective complements and builds upon the IT-component perspective provided by BMC Performance Manager and BMC MAINVIEW.

Problem Detection, Isolation, and Resolution

BMC Performance Manager and BMC MAINVIEW also help the company with problem detection, isolation, and resolution.

Problem Detection

To detect problems quickly, International Tubing leveraged BMC Performance Manager and BMC MAINVIEW custom views, which enabled them to create meaningful views for both distributed and mainframe environments that associated transaction performance with the underlying infrastructure. For example, they created one view that showed:

- > Overall transaction response time
- > Response time of several key steps within the transaction
- > State of the infrastructure elements that support the transaction

When a step in a transaction is slow or fails to play back successfully, BMC TM ART raises an alarm. Like any alarm in BMC Performance Manager, you can use this event to

page an administrator, send e-mail, or perform a corrective action. Rapid notification is critical because a BMC TM ART alarm is often an early warning of business-service degradation that occurs before service model components, such as servers or databases, have gone into alarm.

Problem Isolation and Resolution

The custom views also help dramatically reduce the time spent on problem isolation and resolution because the likely problem area is paired with the underlying infrastructure elements that supports the transaction. The administrator can drill down into the infrastructure, diagnose the problem, and initiate a resolution.

By using synthetic transactions to measure application performance, International Tubing can detect problems earlier and isolate them faster, before users experience service degradation. After IT detects a problem, they can use BMC Performance Manager or BMC MAINVIEW to isolate the root cause and significantly reduce the mean time to repair (MTTR).

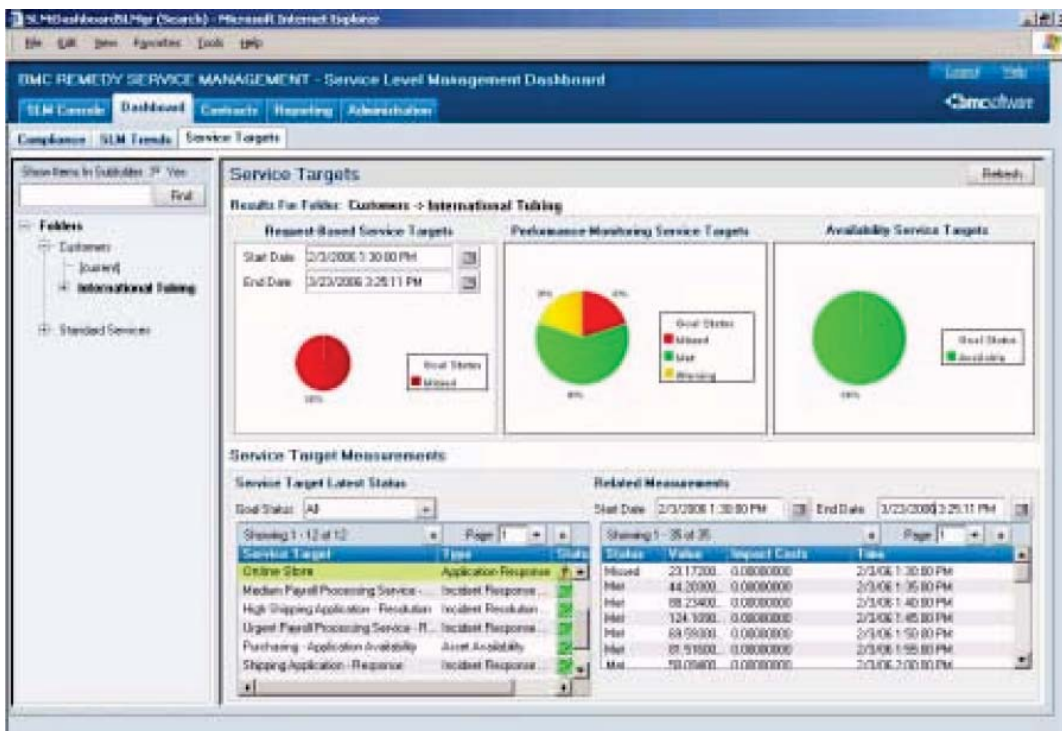


Figure 3: Service Level Targets in BMC SLM

Service Level-Compliance Measurement

Because BMC TM ART makes transaction response time data available to BMC® Service Level Management (BMC SLM), International Tubing used this data to define service level agreements (SLAs), monitor compliance, analyze performance, address problems, and refine business services.

The company defined SLAs for its online store transactions and used the data from BMC TM ART to determine whether the company is meeting those SLAs. Figure 3 on page 10 shows International Tubing service level targets, as displayed in BMC SLM. Figure 3 shows that the service level target for the online store application response time has been breached.

Used in conjunction with BMC TM ART, BMC SLM helps International Tubing ensure SLA compliance by triggering workflows that notify support, escalate resolution urgency, or initiate corrective actions before problems impact the business.

The company minimizes or avoids costly service level breaches by identifying potential problems before they occur. When service level targets are breached, the company tracks the impact cost and uses that information to justify investing in process and technology improvements.

Integrates with Help Desk

Automating the creation of help desk tickets also helps reduce the MTTR. BMC TM ART, BMC Performance Manager, and BMC MAINVIEW can all forward event information to BMC® Service Impact Manager (BMC SIM), which can perform impact analysis and then, if needed, open a help desk ticket. When you automate the help ticket creation process in this fashion, you can also enrich the help ticket with specific information about the problem, such as the error message text from the BMC TM ART transaction. This detailed information helps the administrators diagnose the problem faster.

USING BMC MVTA TO MONITOR MAINFRAME TRANSACTIONS

BMC TM ART can also be configured to raise an alarm when a transaction that requires mainframe processing is slow to return from the mainframe back end. When this type of alarm occurs, IT can use BMC MVTA to measure, within one or two seconds of real time, the performance of business transaction components that execute on mainframe systems. BMC MVTA uses native APIs to communicate with BMC MAINVIEW products and gather data on the monitored subsystems, which can include CICS, DB2, and IMS (future BMC MVTA releases will support WebSphere MQ and WebSphere Application

Server). After it gathers this data, BMC MVTA analyzes and correlates it and then presents a user-friendly, logical view of the transaction performance, which includes details on each of the executions generating a synch point.

Improves Problem Detection and Isolation

BMC MVTA helps z/OS system programmers detect and isolate problems quickly because it tracks business transactions as they progress through the various z/OS subsystems and databases (CICS, IMS, and DB2) and shows each unit of work in the logical order that it executes. It also shows transaction flows and any delays, along with transaction component metrics, such as CPU time and elapsed time.

The BMC MVTA interface summarizes the complex transactions and enables systems programmers to easily drill down and access transaction details. They can hyperlink to a BMC MAINVIEW monitoring product for detailed analysis by pressing the ENTER key on a highlighted field. For any component within a complex transaction, they can find all the related components, and identify the cause of the transaction performance problem.

The ease of use of BMC MVTA is valuable to International Tubing because many of its mainframe programmers and administrators recently retired. Because the junior staff is less skilled at troubleshooting transactions that cross multiple subsystems, they rely on BMC MVTA to track the transactions and show them the data that they need to diagnose problems quickly.

Leverages System Monitoring

Because International Tubing uses BMC MAINVIEW to manage and monitor its mainframe systems, BMC MVTA helped it get even more value out of the data that it collected, while requiring minimal additional overhead.

Improves End-User Experience

BMC MVTA helped the company improve the end-user experience because not only does it monitor mainframe subsystems—it also monitors the real-time business transactions running on those subsystems. When a customer orders valves through the online store, BMC MVTA monitors all of the units of work that comprise the transaction, including the DB2 stored procedure calls, the CICS transaction requests for data from IMS, the IMS retrieval and formatting of the data, and return of the data to the web-based interface.

ITIL SUPPORT

Using BMC TM ART, BMC MAINVIEW and BMC SIM helps International Tubing address the important ITIL® objectives.

Availability Management

BMC TM ART, BMC MVTA and BMC SIM reduce the duration of incidents that impact IT availability, which is an important ITIL Availability Management objective.

BMC TM ART and BMC MVTA also help optimize the availability of IT with regard to the business services they support, which is another important ITIL objective. The servers at International Tubing may achieve 99.999% availability, but this achievement is meaningless if slow response times prevent customers from entering valve orders.

To optimize the availability of business services, International Tubing combined the meaningful IT component monitoring and measurements provided by BMC Performance Manager and BMC MAINVIEW with the ability to monitor the end-user transactions using BMC TM ART and BMC MVTA.

To get even more value from the BMC infrastructure monitoring solutions, the company used BMC SIM to link both the transactions and the monitored components to the business services that they support so that when problems occur with a server or a transaction, they know the business impact.

For International Tubing, knowing the business impact of IT incidents has two benefits. First, it helps them prioritize incidents. For example, given a choice between addressing an online store problem or an employee time sheet problem, they fix the online store problem first. Second, it helps them provide the business justification for spending money on system changes, such as upgrades or the addition of loadbalancing tools.

Capacity Management

BMC TM ART supports the ITIL Capacity Management objective. Continuous monitoring of the infrastructure, including transactions, helps companies ensure that they:

- > Are using hardware and software resources optimally
- > Can achieve agreed-upon service levels

According to the ITIL Service Delivery book, “Many SLAs have user response times as one of the targets to be measured, but equally many organizations have great difficulty in supporting this requirement.”¹ One way to measure user response times is by using “robotic scripted systems” that provide “representative response

times particularly for multiphase transactions or complex interactions.”² BMC TM ART provides this ability to monitor transactions in complex environments from the end-user perspective.

CONCLUSION

BMC Performance Manager and BMC MAINVIEW provide significant value. As the International Tubing example shows, when companies use them together with a transaction-monitoring solution that covers both distributed and mainframe systems, these solutions can dramatically increase a company’s ability to detect, isolate and resolve problems. Because they help IT resolve problems before end users are affected, these solutions are an integral part of a proactive, business-focused IT infrastructure.

HELPING YOU MAINTAIN ADVANTAGE

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1. Office of Government Commerce, Service Delivery IT Infrastructure Library Series, May 2001.

2. Ibid.



Stay One Step Ahead with
Synthetic Performance Monitoring

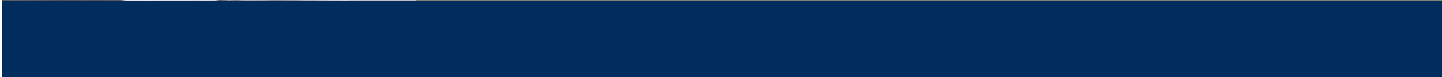


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Introduction

To be competitive in today's environment, businesses must be able to measure and report on application response times from the end-user perspective. This not only helps to validate system performance, but also provides a foundation for quantifiably managing and reporting on service level agreements (SLAs). It also enables preventive maintenance, allowing businesses to make system corrections before an expensive and embarrassing failure occurs.

Synthetic performance monitoring is a process that measures application availability, accuracy, and performance, monitors the end-user experience, and provides early warning of problems as they develop. It enables businesses to predict application behavior, diagnose errors when they occur, and validate internal and external development processes. Ultimately, it saves businesses money by keeping applications up and running and minimizing the damage caused by errors.

COST OF APATHY

Every application is at risk of failing due to software imperfections combined with the deficiencies of the hardware, operating systems, and networks that support them. The cost of those disasters can be tremendous. A 22-hour outage cost eBay US\$2 million in lost revenue and a 26 percent decline in stock price.¹

And applications don't need to fail completely to lose money — even marginally slower performance can be costly. A study by Jupiter Media Metrix discovered that, for certain categories of users, a 10 percent decrease in response times can lead to a 5 percent increase in customer abandonment.²

Clearly, to be cost-effective, applications not only need to function, but function at or beyond expected parameters; and every second they perform poorly costs businesses both customers and revenue.

User experience is typically a consideration only during product planning phases, which might include focus groups and interface prototyping. At best, product managers define design guidelines such as “no more than three clicks to any page,” or performance thresholds such as “every page must load in under ten seconds.” While these are important steps in application development, they provide no real information about how the product is actually used, and no indication of the true user experience. They also provide no indication of how an application is “holding up” under the stress of real world usage. To stay abreast of application performance issues, understand their users, and stop problems before they start, businesses must continually monitor the end-user experience throughout an application's lifetime.

WHY SYNTHETIC PERFORMANCE MONITORING?

Synthetic performance monitoring helps businesses monitor user experience and receive early warning of problems as they develop. Ultimately, the purpose of all synthetic monitoring is to provide an understanding of the overall user experience. The definition of the “user experience” is debatable, but generally, it can be broken down into three aspects:

- > **Availability** — Whenever an application is unavailable to users, it loses its value. Availability failures can come from application failures, permission-related problems, physical limitations, or various network-related issues.
- > **Accuracy** — An application must function properly to be of use. Improperly functioning applications often can be more damaging than an application that fails to function at all. For example, a retail application that provides incorrect prices could force a company to take a tremendous loss, and other similar errors could result in litigation.

- > **Performance** — Assuming an application is available and functioning properly, the next most important measurement is performance. Performance measurements help site managers gauge the scalability of an application, providing early warning of impending crashes or slowdowns. They also provide business and product managers with a realistic view of end-user performance, enabling them to take early corrective action, if necessary. Performance measurements can range from high-level metrics such as “total page load time for a transaction” to more targeted metrics such as database response time for a specific query.

WHAT SYNTHETIC PERFORMANCE MONITORING PROVIDES

Prediction

Prediction is easily the most important benefit synthetic monitoring provides. By monitoring the real-world availability, accuracy, and performance of an application, businesses need not rely on error reports from end users to begin addressing problems. Typically, businesses discover application or performance errors only when a user report is issued, an employee happens to notice the error, or a physical server crashes. As mentioned earlier, every second of subpar performance is costly, and those discovery methods also reveal a business's lack of control.

By identifying degrading application performance before it reaches unacceptable levels and identifying functional errors as they first occur, businesses create a window in which they can “rescue” an application and address issues before they become problems — saving money, credibility, and customers. For example, assume an average credit card transaction on a retail site takes 15 seconds, and the site's average user will leave the site or use the back or reload button (which could result in double billing) after 25 seconds.

During the holiday season or a store promotion, the performance of credit card processing systems may begin to degrade under load, with transaction times gradually increasing toward 25 seconds. Because many retailers outsource credit card authorization, an internal IT department may have no idea that performance is degrading until after the damage has been done and users have started to reorder or abandon. However, setting a synthetic monitor to send a performance alarm when transaction performance degrades to 20 seconds could notify an IT department in time to ensure that additional resources are made available for transaction processing well in advance of reaching 25 seconds.

1 “Cost Of eBay's 22-Hour Outage Put At \$2 Million,” Maura Ginty, www.internetnews.com/ec-news/article.php/137251, June 14, 1999

2 “Tying Performance to Profit,” Peter Christy, Jupiter Media Metrix, June, 2001

Diagnosis

Even an early warning may not always be enough to avert a failure. All applications and their surroundings are imperfect and will, at some point, fail to perform adequately. In these instances, synthetic monitoring can aid in diagnosis, recovery, and in some situations, repairs. Errors discovered by synthetic monitoring often can help businesses localize the problem and begin working on a solution. For example, if only users from a certain region experience performance problems, site managers can focus their efforts and budget on that location.

If accuracy is shown to suffer after certain types of usage (for instance, inputting non-alphanumeric characters into a search field), engineers can create workarounds or fixes for that problem and begin searching for damage in likely places, such as a corrupted search index.

Finally, if application behavior logs indicate that subpar performance from a partner was responsible for errors (such as missing ad banners from an ad-serving network), the business may be able to collect financial reimbursement from the partner.

Validation

By performing such availability and performance analyses on-the-fly, before a failure, synthetic monitoring can proactively validate third-party service providers to ensure compliance with SLAs. Monitoring SLAs can be as simple as setting an alarm at minimum contracted service levels. Data provided by these alarms equips businesses with independent evidence they can use in negotiations or litigation with their service provider. A review of how and when failures occurred can also provide information that helps businesses intelligently structure future SLAs to ensure adequate coverage.

SYNTHETIC PERFORMANCE MONITORING AND BSM

BMC Transaction Management Application Response Time

The size of a synthetic performance monitoring deployment is far less important than the degree of control businesses have over how their application is monitored. Even Web-based applications must be monitored as thoroughly as possible, and solutions that are unable to replay sophisticated behaviors will not provide adequate coverage.

Businesses should absolutely ensure that they can locate replay boxes at necessary locations, both internally and externally; but once that condition is satisfied, they should focus on the flexibility and depth of the agent technology.

BMC® Transaction Management Application Response Time (BMC® TM ART) is a highly competitive application performance monitoring solution that ensures the quality of service (QoS) of business-critical applications. The product monitors three aspects of the end-user experience: availability, accuracy, and performance.

Advanced analytics, tailored to your specific needs, convert collected measurements into a single, easy-to-understand health metric that graphically displays the overall state of an application. Advanced diagnostics help uncover the root cause of errors, while historical data comparisons indicate trends and enable administrators to take proactive, corrective actions before serious performance slowdowns or outages occur.

Service Level Management

Synthetic monitoring is critical to understanding how and if service level agreements are being met. Most SLAs are written by IT organizations in terms that IT understands. Unfortunately, the technical performance of individual components often has little to do with whether the business is getting what it needs.

Service level management enables you to provide the highest quality IT service possible by:

- > Helping you understand the relationships between IT components and how they support the user experience, so you can identify and resolve problems immediately
- > Automating support functions by mapping SLAs to servicedesk and event monitoring, end-to-end transaction management, and reporting
- > Ensuring the highest quality of service and quality of experience from the end-user perspective

Synthetic performance monitoring provides a direct path to Business Service Management (BSM) by managing at the business application level so you can improve the relationships between IT resources and the customer experience, as well as strengthen your ability to meet business-user demands.

Service level milestones provide measurable benefits and value as you progress from technical SLAs to end-to-end, user-based agreements and on to integrated and predictive SLAs.

Infrastructure and Application Management

As IT organizations move toward IT service management — providing various levels of service to customers at various levels of cost — they also must regularly measure and report their service performance. A critical aspect of service performance is end-to-end application service availability. The end-to-end service to be measured is typically defined jointly by the business and IT organization as part of the service-level management process. It includes a set of applications and underlying infrastructure that are critical to a business process.

Examples can include all applications and infrastructure associated with e-commerce, call center, or enterprise resource planning (ERP). Fulfilling the end-to-end service requirements may be done in-house, outsourced, or a combination of both. Although most IT organizations and outsourcers measure the availability of IT components, most do not yet measure end-to-end service availability. However, the trend for measurement is consistent with the IT service management trend and, as a result, large enterprises and outsourcers that measure end-to-end service availability will rise from 25 percent today to more than 50 percent by 2007 and 75 percent by 2009 (0.8 probability).

Today, most enterprises don't measure end-to-end service availability because it's difficult to do, crosses many business, IT, outsourcer, organizational, and process boundaries, and requires significant manual effort to determine outage business impact and cost. Furthermore, many enterprises are just starting to organize IT for service management.

Synthetic performance-monitoring data is critical to successful Business Service Management. If every component of your infrastructure shows it is healthy, but the user or customer does not experience excellent quality of service, then the application or service is still considered unavailable.

When combined with component, network, and application-specific tools, such as BMC® Performance Manager products, you get a more intelligent view of your enterprise IT infrastructure, as well as its ability to deliver services critical to your business.

HELPING YOU MAINTAIN ADVANTAGE

BMC Software Education Services offers a strategic investment for your business, maximizing the value for your employees and Business Service Management initiatives. Education ensures successful product implementation, promoting mastery of all product capabilities and highest productivity with your BMC Software solutions. To explore our education offerings, visit www.bmc.com/bmceducation.



Synthetic and Actual Performance Monitoring

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ABSTRACT

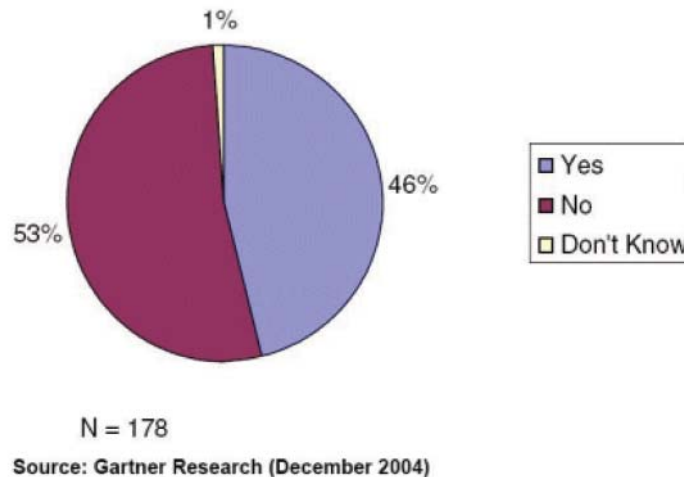
End-user performance is critical to the success of your company. From transactions that employees need to keep the company running at top levels to customer interactions that have the potential to impact your company's revenue, end-user transaction monitoring is more important than ever. With the addition of service-level obligations to your company's customers, as well as their customers, monitoring becomes required.

A plethora of methods are available to measure end-user availability and performance. Among the most effective methods are synthetic and actual response-time solutions. Which of these methods is most important to your enterprise? Which will be the most effective? Both methods have benefits, and it is important to understand where each technology fits and how it can perform its best.

UNDERSTANDING THE IMPACT OF POOR PERFORMANCE

From sales personnel who need to input pipeline data into your company's Siebel implementation to a customer who needs to download a critical patch, it is vital that the transactions that keep your company running at optimum levels are themselves running at optimum levels. Again and again, downtime robs enterprises of time, resources, and, of course, money. In some cases, it has been known to cost corporations up to 16% of their annual revenue.¹ However, a recent survey shows that measuring availability and performance has not resonated with many IT groups.

Figure 1: Gartner Survey: "Do You Measure End-to-End IT Service or Application Availability?"²



1. www.infonetics.com/resources/purple

2. "Poll Reveals Buying Preferences for Availability and Performance Monitoring", Gartner Research, April 18, 2005

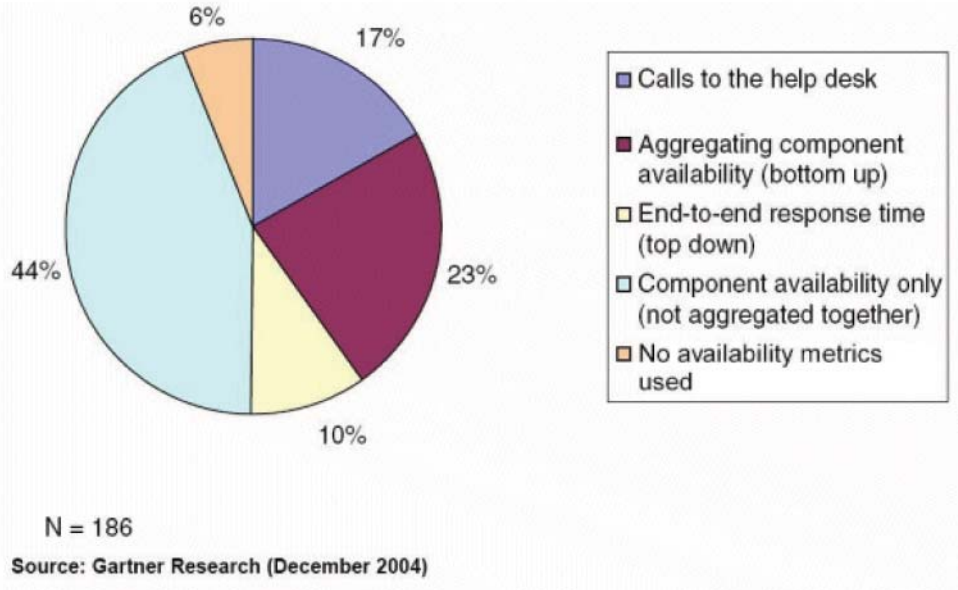
Scenarios associated with poor response time lead to losses. Slow Web site response time is a simple case of poor performance with the potential to drive your customers to your competition. A custom application which drives operations at your manufacturing facility may execute transactions that degrade in response time over a period of days, weeks, or years and inject costly inefficiency into your business processes.

Additionally, you have service level agreements (SLAs) in place between you and your customers, as well as between your customers and their customers. Not maintaining those service levels can contribute to the inefficient operation of your business processes. More importantly, missing service level targets impacts your business financially in the form of monetary penalties, which can quickly add up.

The case for application availability and performance monitoring is a simple one to make because the business impact from poor performance costs you money. However, there is still a lingering question: How do you best measure application response time and overall performance?

There are numerous options regarding response time measurement, as seen in Figure 2.

Figure 2: Gartner Survey: "How Do You Measure Availability?"



Almost all of these methods offer some degree of measurement, but there needs to be a scientific, process-oriented methodology geared toward measuring performance in a meaningful and effective way. Your enterprise must understand what availability and performance is like from an end-user perspective, and how critical it is to your company's success to meet the end-user's needs. To meet these needs, synthetic and active response-time solutions are the preferred vehicles to measure availability and performance.

SYNTHETIC RESPONSE TIME

Synthetic response-time solutions, also known as active or robotic, refer to a methodology by which administrators deploy robots into their enterprise. Robots are entities that act as end users and run transactions on a regular schedule. These robots can be deployed remotely outside of your enterprise or inside your firewall, depending on the type of data to be acquired.

Implementers of a synthetic response-time solution install, monitor, and administer their robots from a central location. This can be within the enterprise or via an outside third party. The administrators deploy robots based on the application or transaction being measured. For example, the administrator may distribute robots within the firewall in an effort to monitor sales input transactions to Siebel, since the target issuers are the sales force, who would have access to the internal enterprise. The administrator could also distribute robots outside of the enterprise to monitor the same transaction in order to simulate a sales person logging into the company network from outside the firewall.

Synthetic response-time solutions offer numerous benefits to users. Most importantly, synthetic performance monitoring allows users to be on the offensive with regard to performance and availability problems. Rather than be reactive to issues, users can proactively schedule the most critical transactions to run at regularly-scheduled intervals. This way, as problems are encountered, the likelihood of identifying and resolving the issues is much higher than if not monitored.

Additionally, synthetic response-time monitoring users can address and resolve issues before customers encounter them. For example, a synthetic response-time solution can execute remote transactions surrounding the Purchase capabilities of a popular Internet bookstore. If customers are not able to purchase products from the Web site, it will directly affect sales and, therefore, revenue. The synthetic solution monitors the Purchase transaction by executing the transaction every 1 minute.

At 6:37 A.M., the robot in Hong Kong reports back to the central console that the Purchase transaction has failed. The same result is reported at 6:38 A.M. and at 6:39 A.M. The system administrator uses the synthetic response-time solution to obtain as much information as possible about the failing transaction. Then, using available IT utilities, the system administrator is able to resolve the transaction problem quickly (assume that there was a log file that needed to be purged). With the problem resolved, the Hong Kong robot resumes reporting normal parameters for the Purchase transaction.

Another benefit of synthetic response-time monitoring is in the scheme of service level management. As mentioned, breached service levels can be a financial detriment to your company, as well as a distress to your customer relationship. With the concept of service level objectives and adequately administered synthetic transactions, you can minimize the chances of breaching your service level agreements by proactively monitoring for breaches below your SLAs.

ACTUAL RESPONSE TIME

A downside to synthetic monitoring is that administrators don't know what real end users actually experience. Robots run in full execution to ensure that transactions work within the environments that have been set up for them, but it is difficult to recreate all types of users, all types of scenarios, and all available locations. Synthetic monitoring has the potential to mimic all types of environments, but to do so would be costly from a time and resources perspective.

Actual response-time monitoring, also known as passive or real monitoring, examines actual user transactions. An actual response-time monitoring product can sit in the network path or outside of it to monitor traffic.

The most visible benefit of this methodology is that administrators can see what end users are experiencing. Synthetic response-time measurement, for all of its benefits, cannot completely understand all the variability a real user is experiencing. With actual performance monitoring, the problem of robots running in environments different than users is alleviated.

Actual performance monitoring is still a new concept. Research efforts are being spent to determine what techniques work best in monitoring real traffic and what monitoring scenarios make sense. Some actual response-time products are merely a web proxy, while others are enhanced network sniffers.

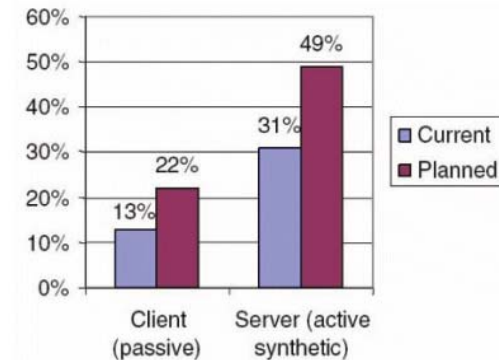
Additionally, administrators monitoring transactions purely from an actual standpoint have little alternative to reactive responses. That is, when the actual availability measurement reports that there are transaction problems, a real user is already experiencing availability problems.

RECOMMENDED APPROACH – COMBINATION STRATEGY

An enterprise being monitored by only synthetic solutions or only actual solutions can yield issues. The best solution is to use both types of monitoring in your enterprise. Using both types of monitoring enables you to see the actual end-user experience, as well as allows you to be proactive against those transactions.

Many administrators are already employing both types of monitoring. In a recent Gartner survey, administrators indicated that they are currently using a mix of synthetic and actual performance monitoring in their enterprises, and that they plan to continue in that regard.

Figure 3: Gartner Survey: “Which end-to-end monitoring style do you currently use and plan to invest in?”



Determine the applications and transactions that are most pertinent to your enterprise, sort these by criticality, and identify which transactions are most crucial to upholding business processes in remote locations. Based on that information, build your response-time strategy laced with robots executing critical transactions, as well as an interface to watch actual network traffic.

With a combined strategy of actual monitoring and synthetic monitoring, be in the best situation to address transaction issues as they relate to the end user by knowing what the real transaction situation is like and proactively deterring issues that arise.

BMC Software is proud to offer BMC Transaction Management Application Response Time (BMC TM ART), among the best in class in performance and availability monitoring. BMC TM ART is a highly competitive, response-time solution that ensures the quality of service (QoS) of mission-critical applications. It monitors end-user experience on three dimensions: availability, performance, and accuracy. Advanced analytics, tailored to your specific needs, convert collected measurements into a single, easy-to-understand health metric that graphically displays the overall state of an application. Advanced diagnostics help uncover the root-cause of errors, while historical data comparisons indicate trends and enable administrators to take proactive, corrective actions before serious performance slow-downs or outages occur.

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