Predictive, Proactive Application Performance Management (APM) with BMC

An ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) White Paper
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Predictive, Proactive Application Performance Management (APM) with BMC

Abstract

BMC Proactive Application Performance Management (Proactive APM) is a distinctive Application Performance Management (APM) solution that can be an asset to IT organizations struggling to proactively manage complex business applications. It incorporates a wide range of capabilities specifically geared toward the “behavior learning” capabilities necessary to cost-effectively manage today’s complex application environments. It also encompasses both data center and user experience monitoring to deliver a comprehensive assessment of end-to-end performance.

This Enterprise Management Associates® (EMA™) paper discusses today’s application management challenges based on EMA research and highlights BMC’s key differentiators as they relate to the broad APM marketplace. Finally, it offers guidelines regarding the product capabilities companies require as they move from reactive to proactive APM.

The Rocky Road to Proactive APM

Every IT organization wants to become proactive, and virtually every enterprise management vendor discusses proactive management as part of their pitch. “Proactive IT” sounds easy, as if it is a matter of turning on a switch and making it happen. In the quest to become proactive, companies have invested millions of dollars to procure the best staff and optimize support processes via ITIL and other best-practice initiatives. And while these investments are certainly worthwhile, they obscure the fact that people and processes alone are not enough. For “proactive IT” to be achievable, it also requires automation capable of moving a company in that direction.

Tools that truly facilitate proactive APM require four fundamental capabilities:

• They must be capable of identifying which metrics, out of a potential “sea” of metrics, should be collected.

• They must be able to “learn” from experience, to understand what is “normal” within the IT environment and what is not. This presupposes near real-time analytics capable of gathering, consolidating, and assessing metrics from multiple sources, since problems are often the result of a cascading set of events versus a single trigger.

• They must be capable of creating and adjusting baselines to accommodate normal drifts in utilization and performance over time. This, in turn, supports the “rolling normal” characteristic of most of today’s IT environments. The baselining process must be capable of recognizing and accommodating routine, time-based variations such as date of the month, day of the week, and time of day, since system loads can vary significantly based on normal and seasonal business job schedules.

• They must also be capable of automatically correlating and analyzing system behavior across all of the components supporting the service. “Predictive analytics” determines the factors contributing to past abnormal behavior to recognize when the same events threaten to again disrupt performance. This capability also helps isolate problems to their root cause.
BMC’s Proactive APM solution builds on these base capabilities. It automatically collects detailed diagnostic data from within the application tier and associates this information with measured end-user response times whenever it detects any abnormal application behavior. This combination of capabilities helps IT teams meet the demands of maintaining service levels while significantly decreasing mean time to repair for complex business applications.

As yet, relatively few IT organizations have such tools, while today’s reality is that both IT environments and the applications they support are extremely complex. Environments are heterogeneous and constantly changing, and applications have multiple dependencies that are seldom well-understood. As a result, problems are often solved by workarounds versus troubleshooting because troubleshooting simply requires too much time—and too many people. Problems keep repeating, and “intermittent problems with no apparent cause” are the number one application-related challenge identified by support personnel (see Figure 1).

The “complexity problem” is aggravated by the increasing abstraction of today’s IT systems. Virtualization abstracts application execution from underlying infrastructure and Service Oriented Architecture (SOA) and composite services add an additional abstraction layer. Platform heterogeneity has upped the ante of application complexity, particularly for companies trying to manage applications with silo-based tools more suitable for managing infrastructure.

Finally, many companies lack the trending information they need to predict capacity requirements growth over time. Lack of insight into capacity and utilization makes it difficult to consolidate workloads or to plan for capacity upgrades. This, in turn, hinders the adoption of new delivery models such as public and private Cloud.

Clearly, the payoff of solving these challenges with proactive APM solutions can be significant. One solution that can help companies turn this corner is BMC’s Proactive Application Performance Management offering. It is distinctively positioned with multiple differentiators specifically addressing proactive APM.
BMC Proactive Application Performance Management and BMC BSM

One major differentiator is the solution’s positioning within BMC’s Business Service Management (BSM) toolset. BMC has built a set of integrated solutions that addresses today’s complex, heterogeneous business application environments. With support for a broad range of technology platforms, including mainframe, virtualization, and Cloud, BMC is vendor, platform, and programming language agnostic.

The BMC offering is composed of two key components: BMC ProactiveNet Performance Management (BPPM) and the new BMC End User Experience Management (EUEM) solution. BMC's EUEM solution combines real and synthetic end-user experience monitoring with deep application diagnostics, and is the result of BMC’s April 2011 acquisition of Coradiant (see Figure 2).

BMC ProactiveNet Performance Management is tightly integrated to BMC’s other offerings, including BMC Atrium Configuration Management Database (CMDB), BMC Atrium Discovery and Dependency Mapping, and BMC Middleware Management for end-to-end transaction tracing. As an integrated package, these solutions offer one of the industry’s leading BSM offerings, enabling companies to automate IT Service Management functions while directly aligning IT performance to business priorities.

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Figure 2: BMC’s Proactive APM Solution and supporting BMC solutions
Within this set of solutions, BMC ProactiveNet Performance Management is one of BMC’s “secret weapons.” The product incorporates a variety of capabilities, including behavior learning and predictive analytics, to eliminate much of the manual work traditionally associated with deploying and maintaining application management solutions. It is also one of relatively few products capable of detecting potential problems BEFORE they occur, giving IT organizations a clear path toward becoming increasingly proactive.

A key strength is the ability to deliver an accurate, real-time view into application execution and its impact on the business. Behavior learning eliminates the manual work traditionally associated with maintaining thresholds by tracking and identifying abnormal behavior across a wide breadth of systems. This expands IT’s ability to utilize a broader range of performance data when analyzing application performance, while reducing the number of alerts to reveal what is actually important.

Patented analytics underlie the product’s predictive capabilities. Leveraging insight drawn from behavior learning and from BMC’s Performance Management Database (PMDB), BMC ProactiveNet Performance Management “watches” IT environments in real time to gather information about normal execution characteristics for a broad range of data sources. When the product “sees” combinations of events that are outside the “normal” functioning of the environment, it notifies support personnel—or takes automated action. By automatically correlating abnormal behavior across service components and metrics, the product enables accurate assessment of the root cause(s) of problems. Often, problems can be fixed before they impact users.

Another differentiator is BPPM’s support for private Cloud and virtualization, which means the analytics work equally well across physical and virtual environments. Such capabilities, when combined with virtualization tools within the BMC portfolio, enable automated response to over-utilization. Virtual servers can be spun up automatically based on BPPM’s analysis of the current state of the application environment and determination that additional servers are needed to support current workloads.

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**Summary of Key Differentiators and Value Proposition**

**Business Aware:** Service Impact Management capabilities combined with BPPM’s sophisticated analytics deliver clear visibility into how application problems actually impact the business. As a result, issues identified can be automatically prioritized in order of their importance, maximizing the bandwidth of IT specialists tasked with fixing problems. This ensures that problems with the greatest impact to business revenue and brand equity get fixed first.

**“Behavior Learning”:** BMC ProactiveNet Performance Management analyzes the IT ecosystem in real time against historical data stored in the PMDB. This enables the product to “learn” and “adjust” normal baselines of behavior and use that “knowledge” to understand the current, past, and future state of the environment. The manual tuning and thresholding required by many management solutions can be a laborious process, both during deployment and during ongoing maintenance. BMC’s automated capabilities reduce the need for such processes. In addition, these capabilities ensure that alert notifications are real, not simply noise generated by deep-dive management solutions.
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- **End-User Behavior Monitoring**: BMC End User Experience Management proactively notifies IT teams when application behavior is negatively impacting the end-user experience. It captures an end user's behavior (such as conversion/abandonment rates, number of pages seen, time-on-page, completed/abandoned transactions, etc.) and ties it to application performance. It also creates a detailed record of the problems that occur during each customer visit, information which is vital for determining how to best optimize mission critical applications.

- **Predictive Analytics**: By observing and analyzing learned behavior, BMC ProactiveNet Performance Management automatically determines relational dependencies across metrics and infrastructure elements. It uses this knowledge to predict when (and where) issues are most likely to occur in the future. This is a significant differentiator that underlies the product’s ability to notify AHEAD OF TIME that the environment is deteriorating and a problem will likely result. In addition, through predictive correlation of alerts (both BMC’s and those generated by third-party tools) with observed behavior, and knowledge of system changes across service components and metrics, the product accurately isolates the cause of current or past problems. This is another significant differentiator that allows the product to evaluate all abnormal behavior, including subtle changes that may not cause an alert, but provide useful information for determining the cause of a problem.

- **Enables DevOps Collaboration**: The integrated solution, combined with deep-dive diagnostics and a unified console, provides the level of detail operations teams need, as well as deep-dive information more relevant to application support teams. The entire IT staff is looking at the same tool, yet each has access to the information most relevant to his/her specific role.

- **Continuous Diagnostics**: The product’s real-time nature is important in today’s technology environments, in which many applications are so business critical that they cannot fail during working hours. In such environments, a product that can “watch” critical application environments, proactively capture details about any irregular application behavior, and then notify in real time, can deliver rapid Return on Investment (ROI).

- **Broad Range of Technology Coverage**: The fact that the integrated BMC product line is vendor- and platform-agnostic, with coverage for mainframe, virtualization, private and public Cloud, is important in today’s extremely heterogeneous application environments.

**EMA Perspective**

With the addition of Coradiant and ProactiveNet to the product line and the tight integration that has been built between ProactiveNet and BMC’s BSM solutions (and planned for Coradiant), BMC has evolved from being primarily an infrastructure management vendor to having a powerful story for applications as well. Efficiency is the name of the game in today’s IT environments, since most companies have been shell-shocked by the economic realities of the past few years. And although budgets are increasing, companies, like individuals, are far more aware of the need to get the most for their money.

In this regard, there are multiple aspects to this product line that are noteworthy. While BMC’s Proactive Application Performance Management solution is tightly integrated to the rest of the BMC toolset, it also stands on its own as a first-rate APM offering capable of analyzing metrics from a wide breadth of sources. EMA analysts like the “plug
in” nature of the re-architected BMC solution set, which enables companies to start small and add products in a step-wise manner. Vendor-agnosticism makes the integration even more relevant, since it means that tools can be deployed “as is” without expensive integration consulting projects.

For companies transitioning from primarily silo-based enterprise management products to a full-fledged BSM toolset, the evolution process can be daunting. However, the benefits can be significant. They include better business alignment, proactive versus reactive management, and cost/staff optimization. Benefits also include protection of tangible and intangible business assets such as brand equity, customer satisfaction, and supplier/partner satisfaction. BMC has made this transition easier by investing in product pre-integration across a well thought out product architecture.

EMA sees BMC Proactive Application Performance Management as one of the few solutions currently positioned for true proactive application performance management. For companies seeking to improve operational maturity by optimizing APM, this solution is well worth an evaluation.

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**About Enterprise Management Associates, Inc.**

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help its clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise IT professionals, lines of business users, and IT vendors at [www.enterprisemanagement.com](http://www.enterprisemanagement.com) or follow EMA on Twitter.

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