

Align IT Operations with Business Priorities

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EXECUTIVE SUMMARY

Virtually every organization today relies on IT for business-critical services. Point of sale systems in retail environments, automated teller machines in banking, and just-in-time inventory and ordering systems in manufacturing are a few examples. Disruption or degradation of these systems can have serious ramifications on the business, including revenue losses, reduced profitability, damaged reputation, and even defection of customers to the competition.

As a result, organizations are transitioning to a Business Service Management platform to simplify, standardize, and automate IT processes in order to efficiently manage business services throughout their lifecycle. This requires a shift from the traditional approach to IT Operations (organized around technology silos) to one that manages service delivery from an application and business service perspective.

The result of not having an understanding of the business applications and services being delivered results in IT operators being overwhelmed by constant firefighting, and in end users being frustrated by regular outages and performance issues.

What's more, the increased infrastructure flexibility and agility that virtualization and cloud computing brings introduces higher levels of complexity, coexistence, and dynamism to the service management process. As a result, the traditional manual approach to maintaining a map of which IT infrastructure supports critical business applications and services is no longer feasible.

IT organizations need a solution that can maintain an accurate map of the underlying infrastructure and its changing dependencies. Automatic application dependency mapping is a critical step toward effective service management, providing the link between business services, applications, and the supporting infrastructure.

This paper explores the many challenges facing organizations as they transition to a modern data center. It also provides solutions to these challenges, presenting how organizations are able to use service models dynamically maintained by BMC Atrium Discovery and Dependency Mapping (BMC Atrium Discovery) to reliably determine when IT resource utilization or performance affects critical business services.

Finally, it explores how BMC ProactiveNet Performance Management leverages the dynamic application dependency maps maintained by BMC Atrium Discovery to provide accurate root cause and service impact analyses.

Read more to learn how IT organizations using BMC Atrium Discovery report improved operational efficiency; delivering a higher quality of service while controlling costs.

THE NEED FOR ALIGNING IT OPERATIONS WITH BUSINESS PRIORITIES

IT is under intense pressure to reduce costs while also improving service availability, quality, and delivery. As a result, organizations are transitioning to a Business Service Management platform to simplify, standardize, and automate IT processes in order to efficiently manage business services throughout their lifecycle.

TECHNOLOGY SILO FOCUS

The traditional approach to IT Operations relies on manual processes organized around technology silos that manage the utilization and performance of individual IT components, such as servers, network devices, and databases.

However, business users are not concerned about the utilization and performance of the individual components that support their business applications and services. Rather, they are concerned about whether they can access the business applications and services they need, when they need them, within an acceptable range of performance defined in established service level agreements (SLAs).

IT, on the other hand, is concerned not only about delivering services to the business when they need them and ensuring that they meet the performance SLAs, but also about containing the costs of the services delivered and minimizing the risks associated with delivering the services.

A BUSINESS-ALIGNED APPROACH TO IT IS NEEDED

IT must manage service delivery from a business application and service perspective. This requires an understanding of the business applications and services being delivered, and their relative priority as determined by their impact on the business at any given point in time. Clearly, a performance problem with a billing system is more critical when the monthly billing cycle runs versus any other time of the month. The real challenge for IT is gaining and maintaining that understanding with minimal cost and risk.

CHALLENGES OF THE MODERN DATA CENTER

IT organizations are transitioning their data centers from a static, dedicated-resource model to a more modern dynamic, shared-resource model. This transition is enabled, in large part, by technological innovations, such as cloud computing, virtualization, and automation.

DYNAMIC ENVIRONMENT

The modern data center continuously adapts to changing demands of the business, potentially leveraging a combination of internal and external resources. Virtual and cloud resources appear, move dynamically among physical resources, and disappear. Not surprisingly, the increased infrastructure flexibility and agility that virtualization and cloud computing enable also introduce higher levels of complexity, coexistence, and dynamism to the service management process — all of which result in increased risk. Higher volumes and rates of change lead to significantly higher risk of service outages. When outages occur, the impact on the business is amplified by shared resources. Industry analysts indicate that unplanned outages due to application failures will increase from 40 to 60 percent for virtualized and cloud-based applications.

A MANUAL APPROACH TO MAINTAINING SERVICE MODELS IS NOT SUSTAINABLE

Many application performance management solutions today provide manual mechanisms for creating service models — mapping physical components (such as servers and network devices) and logical components (such as applications and databases) to specific business applications and services. This approach is more acceptable in a static, dedicated-resource data center. Even so, these manual service models are nearly impossible to maintain, and typically lead to inaccurate root cause and service impact results due to uncoordinated changes not being reflected in the service model. In the modern data center — where virtual and cloud resources are frequently created, moved, and retired — it is simply not possible to manually maintain an accurate service model.

At the same time, the use of virtualized and cloud-based services does not remove the need for monitoring and alerting on service utilization and performance issues. Rather, it increases the difficulties of finding and fixing utilization and performance problems. With higher numbers of resources to monitor, more shared resources, and higher rates of changes to those resources and their relationships with one another, it's not humanly possible for IT to deliver the expected quality of service by manually processing alerts and assessing utilization for individual technology components.

THE NEED FOR REAL-TIME SERVICE MODELS

IT Operations needs to leverage real-time service models to analyze the high volumes of performance and utilization data, accurately determine the root cause and service impact of performance issues, and optimize resources to deliver on SLAs. However, IT Operations teams are already overwhelmed with alerts. Without automated analytics that leverage real-time service models, the operations staff will fall further behind and fail to meet the needs of the business.

INCREASED OPERATING COSTS AND CUSTOMER DISSATISFACTION

Organizations that persist and use manual processes to define service models to map the individual components of their business applications and services quickly find that this approach is both time consuming — with figures of five-to-ten days being cited per business application — and more importantly, ineffective. These manually defined models are typically incomplete due to a combination of limited awareness of the application architecture and changes to the architecture over time. Service models become out of date almost as soon as they are defined, as they cannot be manually updated at a rate that keeps pace with the rate of change in the IT environment.

FALSE AND MISSED ALERTS

These organizations often report regular false alerts (alerts that are falsely triggered) and miss legitimate alerts relating to critical business applications (when alerts fail to trigger). These discrepancies occur when service models do not include all infrastructure dependencies supporting a business application or service. Incomplete models typically occur when changes in the IT environment outpace the rate at which service models are refreshed.

False alerts can create an overwhelming amount of data indicating a problem with a service, when no such problem exists. As a result, IT operations staff may find themselves spending countless hours investigating problems that aren't actually there. Knowing this, operators often ignore or turn off the alerts altogether, which can lead to actual service outages that go undetected for hours or even days. For example, a national shipping company recently reported a four-day outage that remained undetected due to an alert being disabled.

Missed alerts lead IT Operations staff into a false sense of security. According to the monitoring dashboard, everything may show a status of "green" — when in reality, a database server supporting the business application is malfunctioning or reaching capacity limits and is causing delays in end user-response times. This results in the worst situation possible; where end users experience the problem first and report the problem to the support desk before IT is even aware of the issue.

BOTH IT AND THE BUSINESS SUFFER

Both cases result in regular fire-fighting, with IT Operations reacting to what is perceived as high-priority problems triggering an "all hands on deck" exercise. In a desperate attempt to improve the situation, IT often ends up over-allocating staff in an attempt to quickly repair the service. The net result? IT Operators are overwhelmed, end users are frustrated, and business services suffer. The more serious ramifications for the business could include loss of revenue, reduced profitability, damaged business reputation, and even defection of customers to the competition.

FROM DYNAMIC APPLICATION DEPENDENCY MAPS TO SERVICE IMPACT MODELS

To effectively manage a complex business application or service, IT organizations need a solution that can maintain an accurate map of the underlying infrastructure and its changing dependencies. Automatic application dependency mapping is a critical step toward effective service management, providing the link between business services, applications, and the supporting infrastructure.

APPLICATION DEPENDENCY MAPS

BMC Atrium Discovery uses an agent-less approach to discover instances of distributed applications, as well as their dependency components, such as software instances, databases, servers, and network switches. It also automatically maintains these application dependency maps over time.

Patterns provide a simple, powerful, and flexible way to define how software and business application instances are identified. Patterns infer the existence of software and business application instances along with their dependencies from discovered configuration data, and as a result, dependency maps are automatically refreshed each time BMC Atrium Discovery performs a scan of the environment.

BMC Atrium Discovery ships with the industry's most extensive knowledge library of patterns that model commonly deployed software and business applications, such as SAP® and Oracle® E-Business Suite. The library is updated monthly to enhance and update existing patterns and to create new patterns to increase coverage of discoverable products. Having such broad coverage of out-of-the-box patterns accelerates the speed at which application dependency maps can be created and maintained.

Data center environments will no doubt comprise of a broad range of custom software and business applications. BMC Atrium Discovery provides pattern templates to enable rapid modeling of custom software and business applications.

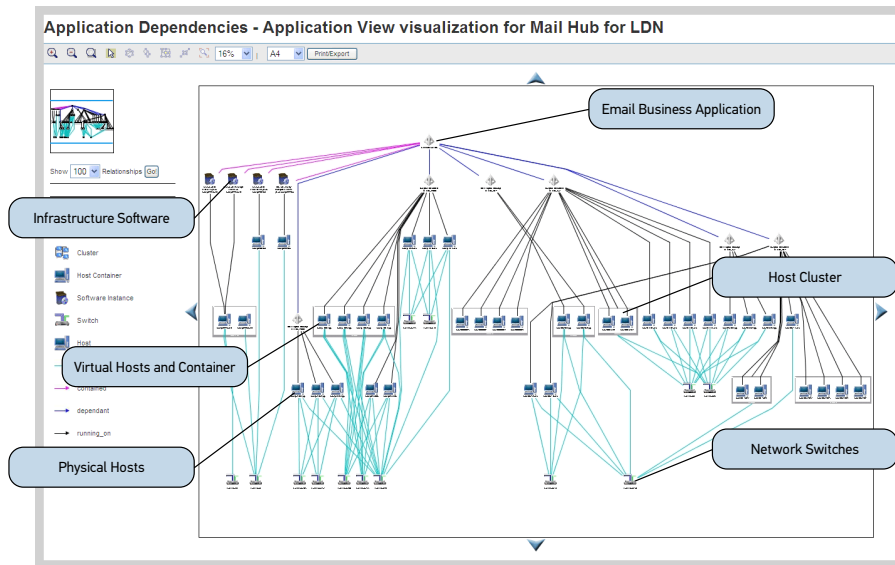


Figure 1. Application Dependency Map for an instance of an email business application

For virtual environments, integration with BMC Atrium Orchestrator and VMware Virtual Center enables BMC Atrium Discovery to automatically detect real-time virtual relationship changes and trigger a targeted rescan, keeping the application dependency map current.

BMC ATRIUM CMDB: BEST-PRACTICE RULES ADD CONTEXT TO RELATIONSHIPS

Discovered data is continuously synchronized with the BMC Atrium Configuration Management Database (CMDB). As part of the synchronization process, the BMC Atrium CMDB Normalization Engine uses industry best-practice rules to assign impact details for each dependency relationship.

Having this additional context about the impact of dependency relationships enables IT Operations staff to more effectively assess the effect that an abnormality, event, or fault might have on a business service.

For example, the service impact for a standalone server will be higher than that of a server that is part of a cluster. A catastrophic failure on a stand-alone server could render the business application or service unavailable, resulting in the highest severity alert. Conversely, a catastrophic failure on a server that is part of a cluster will likely only impair the service, thus resulting in a lower severity alert.

CONSISTENT REAL-TIME SERVICE MODELS ACROSS BSM APPLICATIONS

The BMC Atrium CMDB functions as the heart of BMC's Business Service Management solutions, ensuring consistent information across all functions, such as change management, incident and problem management, event and impact management, performance and availability management, and capacity management. In addition to ensuring consistency across multiple IT disciplines, this shared use of the configuration items (CIs) and relationships in the BMC Atrium CMDB eliminates the need to maintain duplicate information in multiple applications.

For example, BMC ProactiveNet Performance Management leverages the real-time service models in the BMC Atrium CMDB for root cause and service impact analyses. The monitoring components of BMC ProactiveNet Performance Management must always be aware of real-time relationships in order to collect performance and availability information.

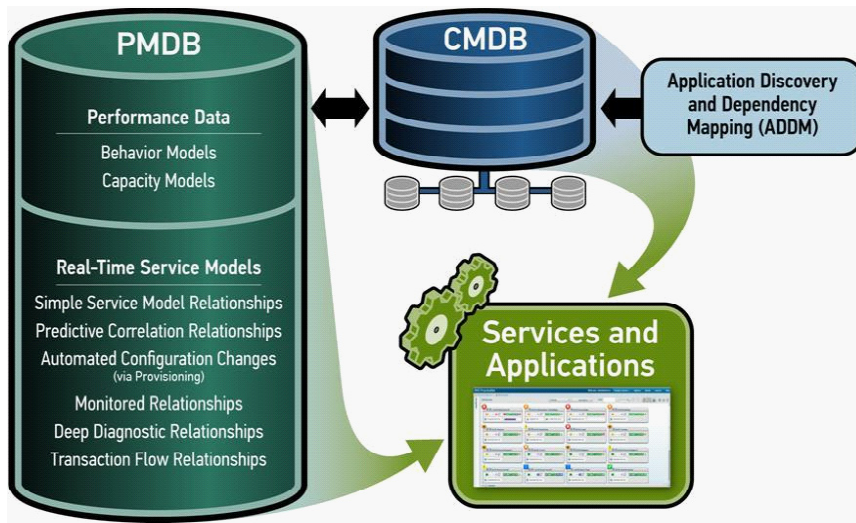


Figure 2. Real-time service models are synchronized between the BMC Atrium CMDB and the performance management database.

These components provide this real-time information to the performance management database, where it is then synchronized with the BMC Atrium CMDB to ensure that relationships in the CMDB remain accurate at all times. The BMC Atrium CMDB performs any reconciliation actions that may be required to ensure consistency between the information in the performance management database and the information in the CMDB.

Consequently, the service model used by BMC ProactiveNet Performance Management remains accurate and representative of the true production environment.

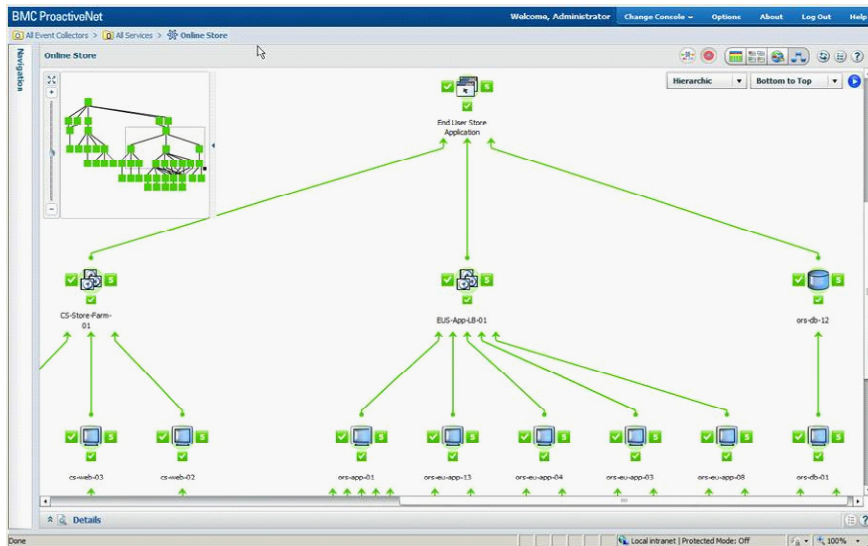


Figure 3. Real-time service model in BMC ProactiveNet Performance Management

PRIORITIZE EVENT RESOLUTION TO MEET PERFORMANCE SLAS

Having accurate service models within the BMC Atrium CMDB also enables service levels to be managed at the business service level. BMC Service Level Management integrates with the BMC Atrium CMDB and BMC ProactiveNet Performance Management to provide real-time computation of SLA status for business services. Having visibility into real-time SLA performance data allows IT Operations staff to better understand the health and SLA status of critical business services in order to properly prioritize event and incident resolution.

Customer Example: Global Investment Bank

As part of its “Eyes on Glass” initiative, a leading global investment bank uses dynamic service models discovered by BMC Atrium Discovery to enable IT Operations to prioritize incoming events based on business criticality.

“We have found that the manual approach to gathering configuration data is both highly expensive and leads to largely inaccurate data. It is simply not a viable approach in an organization the size of ours, with a production environment that evolves this fast.”

BMC Atrium Discovery enables the mapping of our strategic infrastructure to business applications with a high degree of accuracy. The confidence this gives us to use data for mission-critical processes is key to our success. The potential failures we’ve identified and prevented, not to mention the large number of redundant servers we’ve switched off, have already gone a long way to justifying our investment.”

Vice President, Technology and Operations

BENEFITS OF ALIGNING IT OPERATIONS WITH BUSINESS PRIORITIES

As IT organizations transition their data centers to a more modern, dynamic model, they are using BMC Atrium Discovery to automatically discover and maintain real-time service models. This enables reliable determination of root cause and service impact for performance issues, thus driving accurate capacity planning, optimization and management activities, and better executive decision-making. These real-time service models keep pace with the increased rate of changes taking place in the IT environment.

As a result, these organizations report that they were able to:

- » Gain better understanding of how services impact the business
- » Improve resource and capacity utilization; avoiding over and under-utilized resources
- » Reduce capital and operational expenditures
- » Improve operational efficiency; delivering high quality service while controlling costs
- » Reduce Mean Time To Repair (MTTR)
 - Eliminate false alerts and avoid missed alerts with real-time service models
 - Simplify and accelerate problem isolation based on accurate root cause analysis
 - Prioritize events and incidents based on accurate service impact analysis
- » Reduce number of resources required to maintain CMDB data by 80 percent

For more information visit: www.bmc.com/discovery

BUSINESS RUNS ON IT. IT RUNS ON BMC SOFTWARE.

Business thrives when IT runs smarter, faster and stronger. That's why the most demanding IT organizations in the world rely on BMC Software across distributed, mainframe, virtual and cloud environments. Recognized as the leader in Business Service Management, BMC offers a comprehensive approach and unified platform that helps IT organizations cut cost, reduce risk and drive business profit. For the four fiscal quarters ended December 31, 2010, BMC revenue was approximately \$2 billion.

