

Align Change and Incident Management with Business Priorities

TABLE OF CONTENTS

- EXECUTIVE SUMMARY 1

- THE NEED FOR BUSINESS AWARE SERVICE SUPPORT PROCESSES 2
 - » The Challenge of Traditional IT 2
 - » A Business-Aligned Approach to IT is Needed. 2
 - » Majority of Unplanned Outages are Caused by Errant Change 2
 - » Poor Incident Prioritization and Prolonged Root Cause Analysis. 4

- CHALLENGES OF THE MODERN DATA CENTER. 5
 - » Dynamic Data Center Environments 5
 - » Manual Approach to Maintaining Service Models is No Longer Sustainable 5

- FROM DYNAMIC APPLICATION DEPENDENCY MAPS TO SERVICE IMPACT MODELS 6
 - » Dynamic Application Dependency Maps 6
 - » BMC Atrium CMDB: Best-Practice Rules Add Context to Relationships. 7
 - » Consistent Real-Time Service Models Across BSM Applications 7
 - » Proactively Manage the Business Impact of Change. 8
 - » Prioritize Incidents and Accelerate Time to Resolution 8
 - » Prioritize Activity Based on Service Level Targets 9
 - » Customer Example: Global Manufacturer 10

- BENEFITS OF BUSINESS AWARE CHANGE AND INCIDENT MANAGEMENT PROCESSES 10
 - » Change & Release Management 10
 - » Incident Management 10

EXECUTIVE SUMMARY

Every organization today relies on some level of 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 approach by simplifying, standardizing, and automating IT processes in order to efficiently manage business services throughout their lifecycle.

Failing to understand how IT infrastructure supports business services results in a high number of unplanned outages due to change — and subsequently, in service desk targets being missed due to poor prioritization of incidents and inefficient investigations. As a result, service desk staff are overwhelmed by constant firefighting, and end users are frustrated by regular outages and performance issues.

What's more, the increased infrastructure flexibility and agility of virtualization and cloud computing 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 enable business-aware change and incident management processes.

Read more to learn how IT organizations are using BMC Atrium Discovery to reduce unplanned downtime by:

- » Reducing the business impact of change
- » Better prioritizing incidents
- » Reducing incident resolution times

THE NEED FOR BUSINESS-AWARE SERVICE SUPPORT PROCESSES

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 approach by simplifying, standardizing, and automating IT processes in order to efficiently manage business services throughout their lifecycle.

THE CHALLENGE OF TRADITIONAL IT

The traditional approach to managing IT is organized around technology silos with focus on IT component types, such as servers, network devices, and databases.

However, business users are not concerned about the availability or 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, and within an acceptable range of performance defined in established service level agreements (SLAs).

IT, on the other hand, is concerned about delivering those services to the business when they need them and ensuring that they meet the availability SLAs, while also containing the costs of the services delivered and minimizing the risks associated with delivering the services.

A BUSINESS-ALIGNED APPROACH IS NEEDED

IT must therefore be managed from a business perspective. This requires an understanding of the business applications and services being delivered, as well as their relative priority as determined by their impact on the business at any given point in time. For example, an outage or degradation of performance of a billing system is clearly 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.

MAJORITY OF UNPLANNED OUTAGES ARE CAUSED BY ERRANT CHANGE

According to Gartner, "Through 2015, 80% of outages impacting mission-critical services will be caused by people and process issues, and more than 50% of those outages will be caused by change/configuration/release integration and hand-off issues."¹

With the typical enterprise executing between 1,000 and 2,000 infrastructure-related change requests per month (such as hardware upgrades, OS patching, software upgrades, and server consolidations) this can result in a significant number of incidents and unplanned outages.

Production incidents, as well as performance and availability problems, impact the business and its customers. Failure to fix such problems increases support costs and could lead to more serious ramifications for the business, such as loss of revenue, reduced profitability, damaged business reputation, and even defection of customers to the competition.

Figure 1 shows a typical change process. Let's examine the challenges associated with executing this process using an example where an automated compliance monitoring tool has detected a database that requires updating because it does not meet the company's security patching requirements.

- 1. Initiate** – The change manager needs to prioritize the Request for Change (RFC) to patch the database instance. As SLAs are associated with business services, the change manager will need to know which business services are being supported by the database instance. Without this information, the RFC cannot be correctly prioritized. Lack of service context often results in a significant proportion of RFCs being inappropriately prioritized as high impact and urgent.

¹ Gartner Research, Top Seven Considerations for Configuration Management for Virtual and Cloud Infrastructures, 2010

2. Review and Authorize – Approvers will be required to review the request and approve it before it can move forward. Approvers may be database administrators, members of the security team, or application developers (who will need to validate that the patch is compatible with other application components). However, without insight into which business application or services are supported by the database instance, how does the change manager know which application developer teams to include in the approval process? Failure to include the application developer team in the approval process significantly increases the risk of an outage or degradation of service.

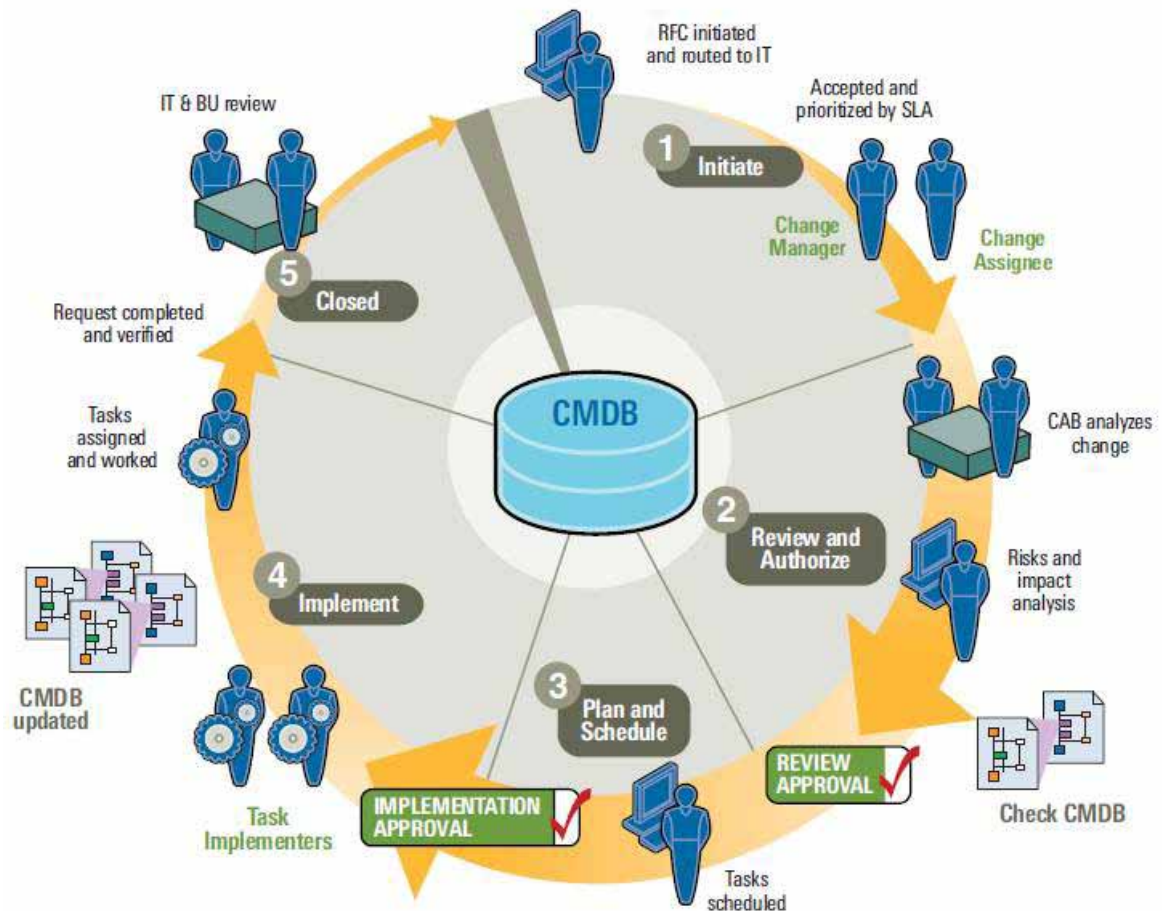


Figure 1. Change Process

3. Plan and Schedule – To mitigate risk, the change manager needs to ensure that there are no other RFCs scheduled for the same database instance, thus avoiding a change collision. In addition, the change manager should ensure that there are no other scheduled changes to other components with which the database server may interact to support the business application or service, as these may also cause compatibility issues. More importantly, the change needs to be scheduled at a time that will minimize impact to the business, ideally outside of business hours, again requiring the change manager to have an understanding of the business context of the change.

4. Implement – Although the change may be marked as implemented, IT should verify that the RFC was resolved satisfactorily before setting the status of RFC to closed. Many changes are scheduled, but due to human error, are not fully executed as planned, thus resulting in incompatibilities, security breaches, and even orphaned servers remaining in the data center consuming precious data center resources.

5. Review – The change manager verifies that the change request was completed and also analyzes key performance indicators (KPIs), such as whether the change was successful, or how many incidents were resolved by the installation of the new server. Without knowledge of which business application or service is being supported by the database instance, the change manager will not be able to accurately associate incidents raised by end users to the change itself.

This “typical” process illustrates how the limited, siloed view that IT staff have of how IT infrastructure supports the business often means that IT staff are restricted to best effort and guesswork when it comes to planning and executing changes. To remove this guesswork, IT staff need visibility into dependencies that business applications or services have on IT infrastructure, not only across different technology silos but also data center environments, organizations, and cloud environments.

Without this insight, organizations are exposed to potentially high-profile outages, similar to that experienced by a well-known organization whose CRM system was made unavailable due to an errant change. The consequence was that 2,500 call center agents were unable to work for the majority of a day. As a result, the organization incurred a significant financial penalty due to lost revenues and customer dissatisfaction, potentially impacting their reputation in the market.

POOR INCIDENT PRIORITIZATION AND PROLONGED ROOT CAUSE ANALYSIS

Service desk staff are under pressure to supply higher levels of support to the business in the form of faster incident resolution and improved service levels. However, incident management processes are often not standardized, and prioritization of incidents is often done without an understanding of their impact on the business.

Let’s examine two key stages of the incident management process.

Classification and Prioritization – Imagine a scenario where a capacity management monitoring tool automatically raises a service desk ticket because a server has exceeded its storage threshold. The first challenge for the service desk staff is to determine the priority of the incident. *How important is the server? Is it supporting a business application or service currently in production? What is the potential impact of the server exceeding its threshold?* Clearly, an outage or degradation of performance of a payroll system is more critical during the last week of the month versus any other time of the month. However, severity and urgency can only be assigned to the ticket if the service desk staff have an understanding of the business context of this particular server.

Investigation and Diagnosis – Imagine a scenario where an end user raises a ticket in response to the email service being unavailable. Classification and prioritization would be relatively straightforward as soon as the service desk staff determined that all users are impacted. In this case the challenge for the service desk staff is fast recovery of the service. *But where do they focus their investigation? On which servers do they target their investigation? Have any changes been recently executed on IT infrastructure supporting the email service?*

In a desperate attempt to improve the situation, IT management often ends up over-allocating staff to repair the service. The net result is an overwhelmed service desk staff and frustrated end users as business services suffer.

According to Gartner’s IT Key Metrics Data, “IT service desk accounts for about 4% of the overall IT budget. Since 86% of the costs of an IT service desk is staffing that means 3.9% of the total IT budget is spent on IT service desk staff”². As a result, IT management need to minimize inefficiencies by ensuring that the right resources are assigned to the appropriate incidents at the right time.

² Gartner Research, Magic Quadrant for the IT Service Desk, 2010

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 DATA CENTER ENVIRONMENTS

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.

MANUAL APPROACH TO MAINTAINING SERVICE MODELS IS NO LONGER SUSTAINABLE

In an effort to align change and incident management processes with business priorities, many IT service management solutions use CMDBs as mechanisms for manually 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 then, however, these manually created service models are virtually 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.

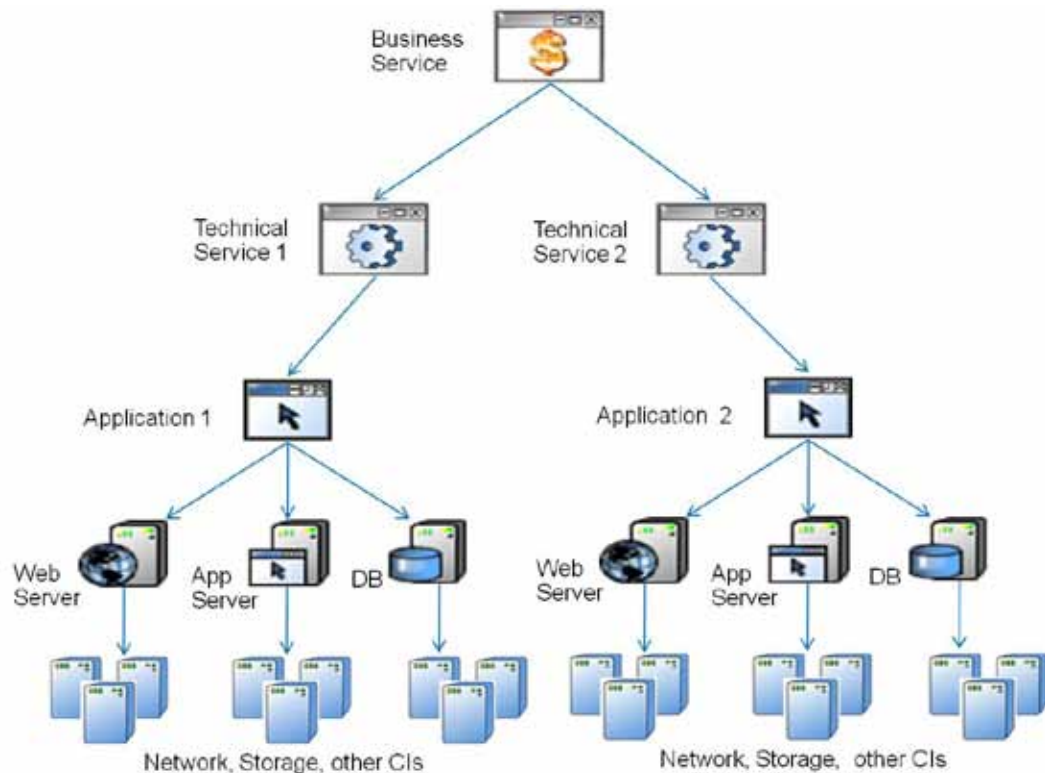


Figure 2. Conceptual service model

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. This results in inaccurate data leading to ineffective change planning and incident management.

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.

DYNAMIC 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.

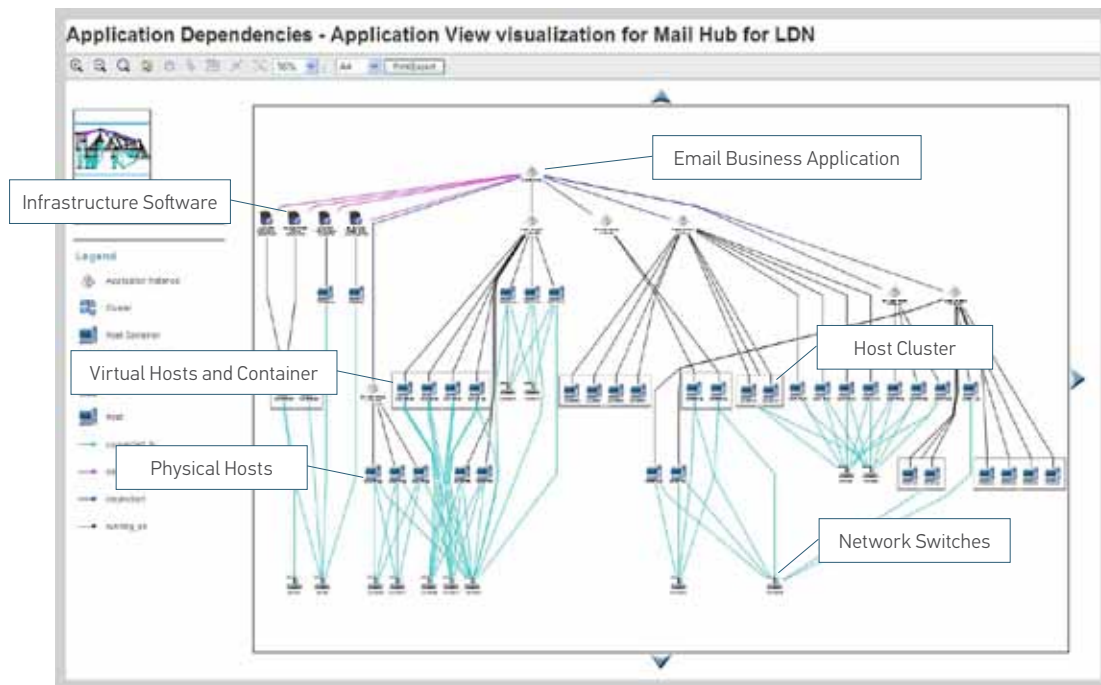


Figure 3. Application dependency map for an instance of an email business application

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 to keep 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 change managers and service desk staff to effectively assess the business impact of a change, prioritize incidents, and target investigation.

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.

PROACTIVELY MANAGE THE BUSINESS IMPACT OF CHANGE

Accurate service models allow changes to be assessed by viewing the relationships to other CIs, thus enabling IT to fully understand their risk and impact. By using business contextual dependency relationships, it is also possible to automate the identification of reviewers and approvers for the Change Advisory Board (CAB) by pulling affected CI stakeholders related to the CI(s) to be changed.

BMC Remedy IT Service Management solutions, including BMC Change Management, allow users to analyze the impact of a change on other CIs using the BMC Atrium Impact Simulator. The BMC Atrium Impact Simulator analyzes service models to predict the impact on CIs by using the impact details created by the Atrium CMDB best-practice rules. For example, a simulation that includes a server which is being made unavailable to allow implementation of a change might return several related CIs that are predicted to be unavailable as a result of the unavailable server.

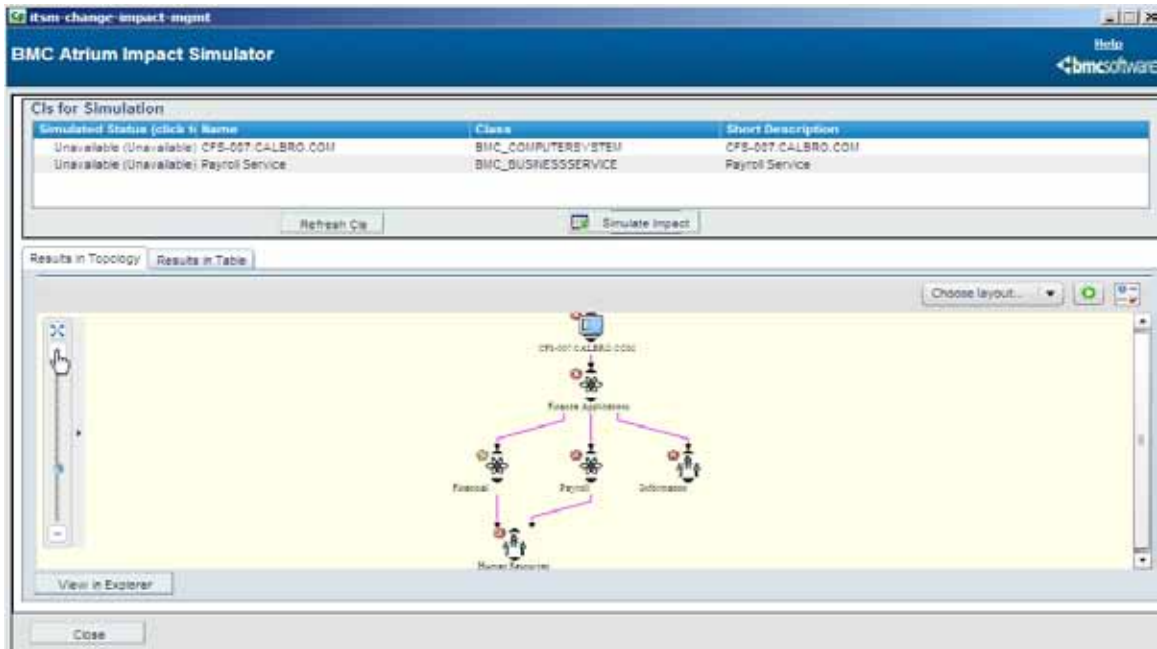


Figure 4. Simulated business impact as a result of making a change to a CI

PRIORITIZE INCIDENTS AND ACCELERATE TIME TO RESOLUTION

Similarly, another BMC Remedy IT Service Management solution, BMC Service Desk, provides a bottom-up perspective of service models, thus allowing service desk staff to quickly determine which business applications or services are supported by a specific IT infrastructure component. This provides service desk staff with a quick and accurate understanding of the potential impact of an incident, thereby allowing them to assign the correct severity and urgency to an incident.

In addition, service desk staff can also view service models from a top-down perspective to quickly identify which IT Infrastructure components support a specific instance of a business application or service helping to expedite investigations and recovery of an incident.

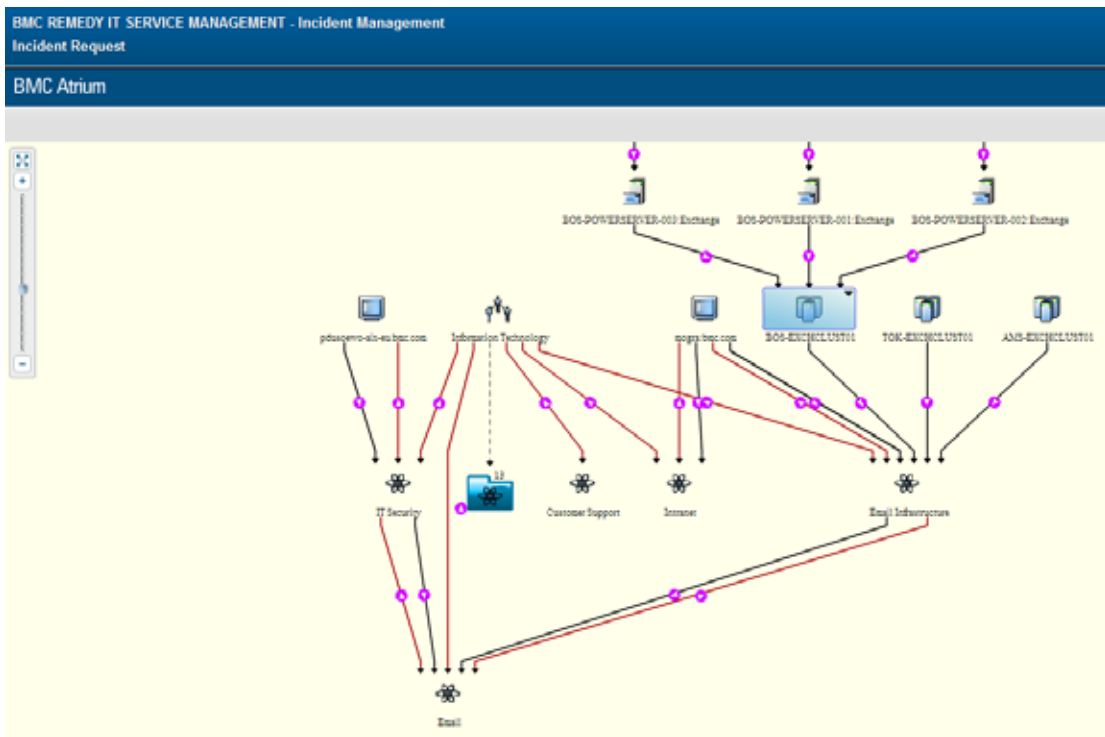


Figure 5. Service model helping service desk staff target investigation of an outage to the email service

PRIORITIZE ACTIVITY BASED ON SERVICE LEVEL TARGETS

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

Related Service Targets

Incident ID: INC00000101163

Next Target Date: 12/15/2010 6:11:06 PM

2 entries returned - 2 entries matched

SVT Title	Goal	Ho...	Min	Cost Per	Due Date/Time	Progress
DEB - critical incident	Incident Re...	0.00	30.00	0.00 USD	12/15/2010 5:41:06	Met
DEB - critical incident	Incident Re...	1.00	0.00		12/15/2010 6:11:06	In Process

Next Target Date: **OK**
 Due Date and Time: 12/15/2010 6:11:06 PM
 Time Until Due: 0 hr 52 min

2 entries returned - 2 entries matched

Title	Execution Time	Status
Incident 75% Milestone	12/15/2010 5:56:06 PM	Active
Incident 50% Milestone	12/15/2010 5:41:06 PM	Active

Figure 6. In-context service targets in BMC Service Desk

CUSTOMER EXAMPLE: GLOBAL MANUFACTURER

One BMC customer implemented a service desk along with change and release management as part of its initiative to form one common IT group supporting all lines of business. Initially, the CMDB was updated manually with configuration data but soon reached a stage where the company felt that they could no longer rely on the data in the CMDB. Because the relationships between the different CIs did not exist, when a change was performed staff were unsure what business applications might be affected by the change.

The company came to the conclusion that an automated discovery and dependency mapping solution was the only way to ensure the accuracy of data in the CMDB. As a result, the manufacturer implemented BMC Atrium Discovery and Dependency Mapping with the key objective of having, at all times, a trustworthy and accurate CMDB that could be used by processes, such as incident, problem, and change management, to ensure correct decisions and reduce handling time. Subsequently, the company reported that they were able to realize the following benefits:

- » Reduced downtime caused by change collisions by 75 percent
- » Reduced unplanned downtime of critical business applications due to change by 50 percent

BENEFITS OF BUSINESS-AWARE CHANGE AND INCIDENT MANAGEMENT PROCESSES

Organizations that have made the transition to business-aware change and incident management processes report the following benefits:

CHANGE AND RELEASE MANAGEMENT

- » Better estimations of the time and cost of implementing a change
- » Higher change success rate by improving the impact and risk assessment of change
- » Increased service availability by scheduling changes outside of business hours, thus minimizing risk from unexpected consequences and reducing outages caused by change conflicts
- » Increased productivity by reducing failed changes and therefore unplanned work, service disruption, defects, and re-work for IT staff and the business
- » Increased confidence that a change has been implemented correctly, preventing errors and the unintended side effects of change that can increase risks building up over time

INCIDENT MANAGEMENT

- » Faster mean time to repair (MTTR)
 - Prioritize incidents based on accurate service impact analysis
 - Simplify and accelerate problem isolation based on accurate root cause analysis
- » More effective and faster decision-making by providing accessible and accurate configuration information to service desk and IT operations staff
- » Improved operational efficiency; delivering high quality service while controlling costs

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 March 31, 2011, BMC revenue was approximately \$2.1 billion.

